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Richland Northeast High School, Columbia, South Carolina

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RICHLAND NORTHEAST HIGH SCHOOL

COLUMBIA, SOUTH CAROLINA

by J. Sanders Tate

A terminal project submitted to the faculty of Clemson University College of Architecture as a partial fulfillment of the requirements for the degree of

MASTER OF ARCHITECTURE

May 9, 1980

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DEDICATION

To my parents, for their constant support and

to Donna, just because.

ACKNOWLEDGEMENTS

I wish to thank my committee members, Johannes Holschneider and Teoman Doruk, for their encouragement and expert advice; and I would especially like to thank my committee chairman, Peter Lee, for his unending dedication to his students and his gift for education.

FORWARD

0.0 FOREWARD

The basis of a strong country lies within the skill and knowledge of its citizens. Therefore, we must take great care in the education of our best resource, the youth of the United States. The care in which we structure their environments, both psychologically and physically, is the key to their future and our own.

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PROBLEM STATEMENT

1.0 PROBLEM STATEMENT

In line with the recommendations of the long range "Plan 1972," prepared by the educational consultant firm of Stanton Leggett and Associates of Chicago, Illinois, the Board of Trustees of Richalnd County School District Two plans to build a new high school. The proposed high school is to be built in the more populated area of the district and will have a capacity of approximately 2,000 students. Design of this new Richland Northeast High School is the subject of this terminal project.

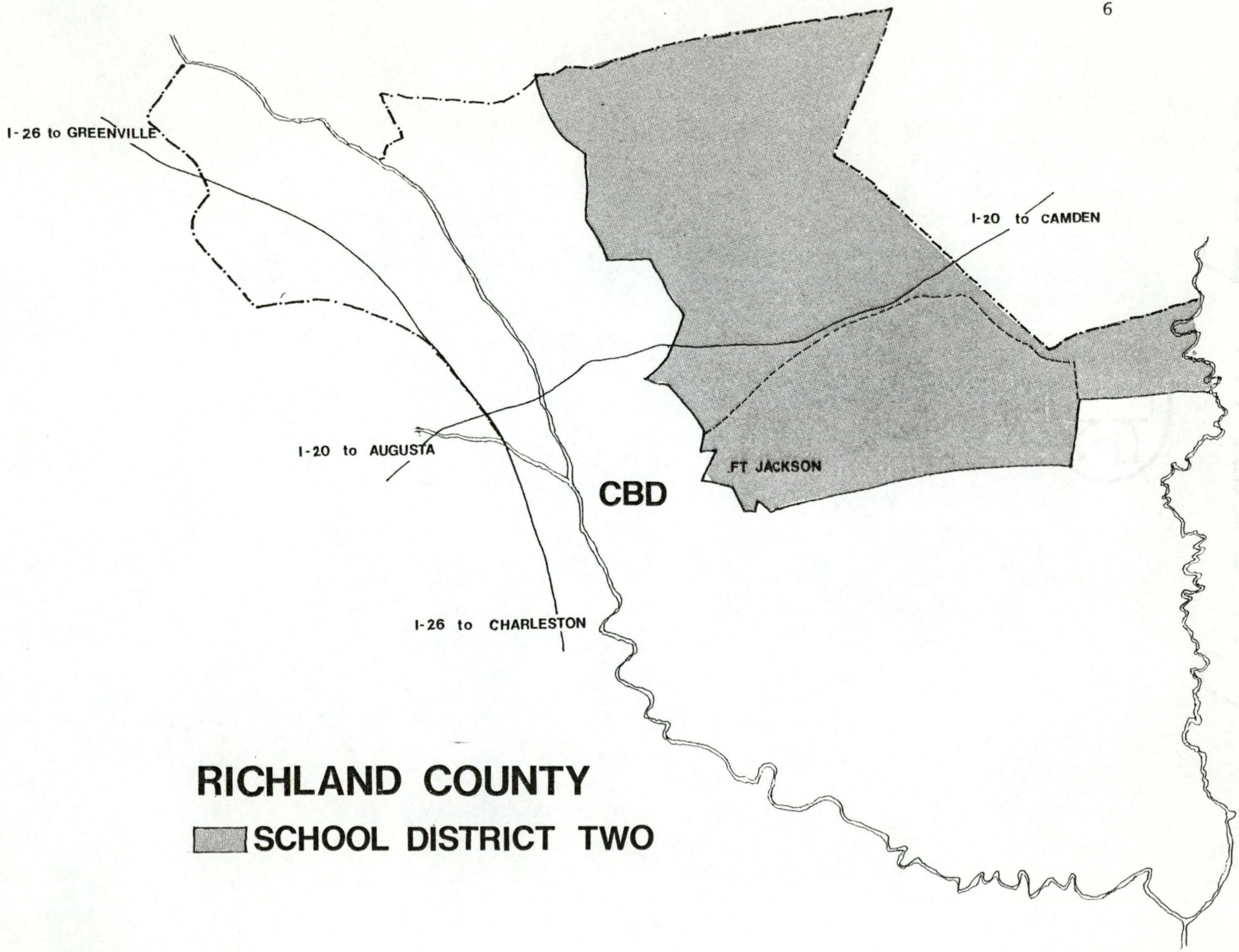
RESEARCH

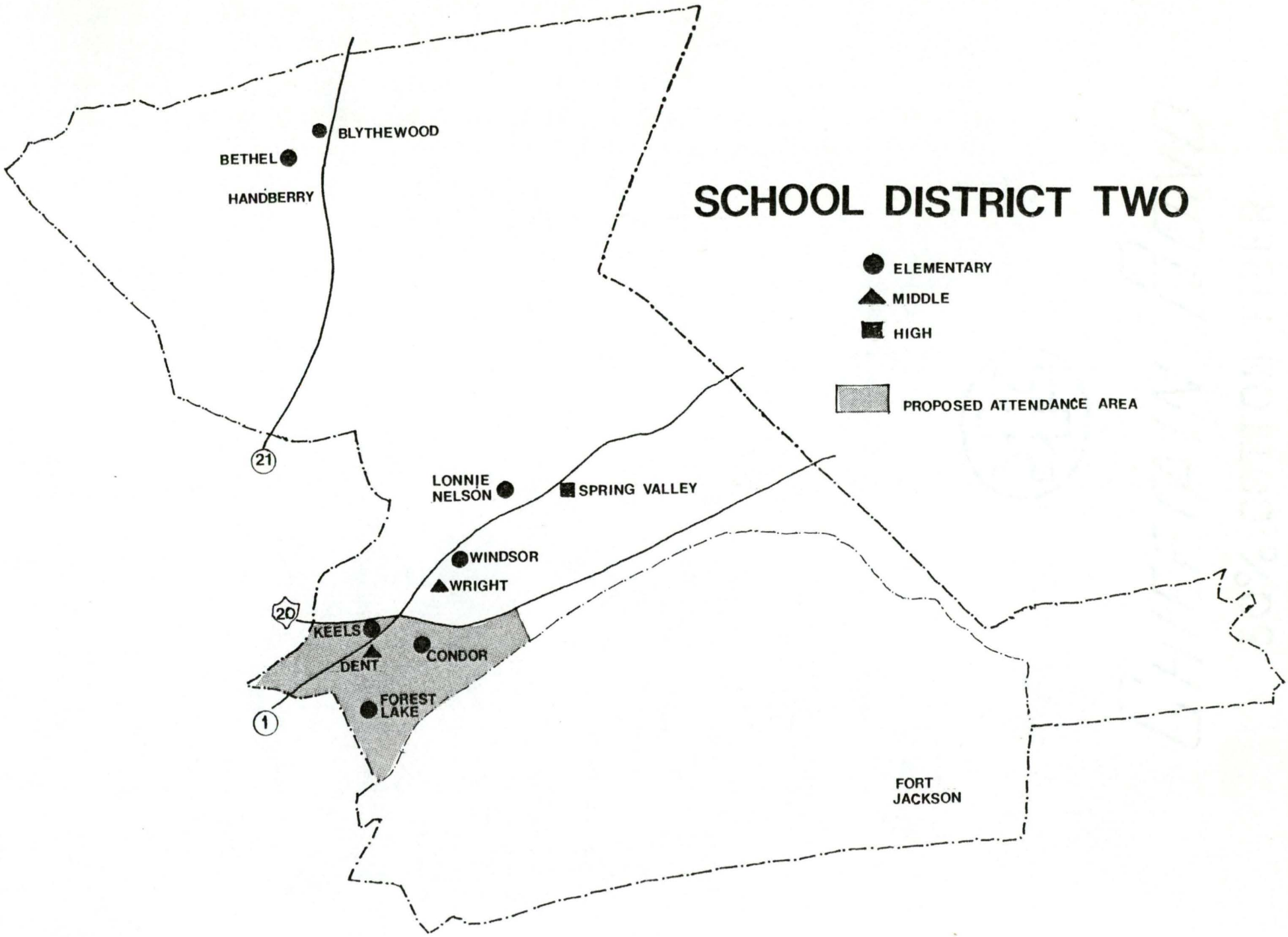
2.1 RICHLAND SCHOOL DISTRICT TWO

School District Two of Richland County has an area of 240 square miles, approximately half of which includes the Fort Jackson Reservation of the United States Army. The district now operates one child development center, six elementary schools, three middle schools, and one high school with a total population of 10,600 students and 460 teachers.

Bethel Elementary School	238 students
Hanberry Middle School	266 students
Blythewood Elementary	251 students
Dent Middle School	1910 students
Conder Elementary School	512 students
Forest Lake Elementary School	557 students
Spring Valley High School	2879 students
Joseph Keels Elementary School	524 students
Nelson Elementary School	822 students
Wright Middle School	1387 students
Windsor Elementary School	619 students

Richland School District Two is located northeast of the Columbia metropolitan area, and is bisected by highway, Interstate 20, which leads north to Camden, South Carolina, and south to Augusta, Georgia. This district, which was begun in 1922, has grown rapidly in the last ten to twenty years as people have moved into Richland County and created new communities around the city of Columbia. School District Two is comprised of several of these new suburban developments and a large area of rural and agricultural land. There is a general cross-section of socio-economic groups in the district, with households ranging from deprived to affluent.


I-26 to GREENVILLE
I-20 to CAMDEN
I-20 to AUGUSTA
FT JACKSON
CBD
I-26 to CHARLESTON
RICHLAND COUNTY
SCHOOL DISTRICT TWO


SCHOOL DISTRICT TWO
ELEMENTARY
MIDDLE
HIGH
PROPOSED ATTENDANCE AREA
BLYTHEWOOD
BETHEL
HANDBERRY
21
LONNIE NELSON
SPRING VALLEY
WINDSOR
WRIGHT
20
KEELS
DENT
CONDOR
FOREST LAKE
1
FORT JACKSON

2.2 EDUCATIONAL PHILOSOPHY AND RICHLAND COUNTY SCHOOL DISTRICT TWO

"The Board endorses the concept that the education of the young is a foremost function and responsibility in our dynamic and democratic society. The Board's function is to provide an adequate schooling environment in which each pupil, in terms of his own individual characteristics, may develope his full potential to become a useful, productive, and responsible member of his home, community, and society. The Board is aware that its service and function are interrelated with other services and considerations in our society. Within these relationships the Board recognizes the need to improve the leadership required to maintain the public education of the young at a level of high quality in our community and society.

... Large secondary schools do not have to be impersonal, traditional institutions where students feel lost and teachers feel alienated. The statements on philosophy and objectives for Richland Northeast High School give emphasis to students developing skills and values through a flexible and broad curriculum designed to meet the diverse need of a student body coming from military, rural, semi-skilled industrial, technically skilled, and professional families.

An effort is made to encourage students to think for themselves, accept reasonable responsibilities, think critically and to appreciate respect for the virtues and strengths of America."

2.3 BUILDING PHILOSOPHY OF SCHOOL DISTRICT TWO

The Board of Education of Richland County School District Two strives to maintain a vaible building program for the facilities within their district. Their goal is to insure safe, functional, and up-to-date schools for all age groups. The Board believes that no specific aspect of education should have more importance than the other; they give equal emphasis to everything from special programs for the gifted to physical education. They feel the schools should serve the genral community as well, with easy accessibility to facilities and programs by community residents.

The present School Board tends to aspire to a more traditional approach to school design, but emphasizes the need for buildings that can grow and change future educational needs.

2.4 HISTORY OF SECONDARY SCHOOLS

Beginning in the colonial days of America, schooling was patterned after English Latin grammer school concepts of education. This concept of rote memorization in the "one room schoolhouse" system was continued into the 1800's with the Lancaster system. The Lancaster system, also borrowed from England, was a regimented system of one teacher training fifty assistant teachers who in turn taught ten students each. Until 1821, when the first public school (Quincy grammer school) was opened, formal education had been conducted only in private or parochial schools. A landmark Kalamazoo, Michigan court case in 1847 opened the doors for national public education with the approval of a public tax supported education system. In 1848 the graded school concept with actual physical separation of classes came into being. The national educational system experienced little change in philosophy or physical aspects until after World War II. During the

1950's education branched out and took on new life. The number of schools expanded pragmatically, and increased emphasis developed in vocationally oriented programs. New ideas in education were explored, leading to open plan schools and team teaching concepts. Although not uniformly successful, these ideas influenced school building design in a number of ways, prominent among them being flexible space utilization.

2.5 EMPLOYMENT DATA

For many years the United States Army has been a major employer of people in School District Two. Twenty-five percent of the population in the district is employed on the Fort Jackson Reservation. Many of the residential developments in the district serve as "bedroom" communities for people who work in the city of Columbia. Twenty-nine percent of the district families earns $8,000 or less, 30 percent earns between $8,000 and $15,000, 25 percent earns between $15,000 and $25,000, and 14 percent earns $25,000 or more.

2.6 CLIMATE DATA

The climate of Richland county is temperate.

General Average Temperature		70°
Average Total Rainfall		46.8"
Average Wind Speed		7.0 mph
Sun Angles	12 noon summer	78°
	12 noon winter	34°
Highest Temperature		106°
Lowest Temperature		5°

2.7 SEISMIC DATA

Columbia is located in zone number 3 of the seismic risk map of the United States.

In Zeismic Zones number 3, the anchorage of the following mechanical and electrical equipment required by the section shall be designed in accordance with Section 2312 and Table No. 23-J, Item 4-d:

1. Elevator drive and suspension systems
2. Standby power and lighting facilities
3. Fire pumps and other fire protection equipment

COMPLIANCES AND CONSIDERATIONS

3.1 SCALE CONSIDERATIONS

Furniture anf fixtures in a high school should be in scale to best suitable for use by the proper age group. The following chart is from the South Carolina School Facilities Planning and Construction Guide.

Working Heights for School Fixtures and Equipment

Item	Grades 7 - 12	Adm. & Public
Lavatories	2'-6"	2'-7"
Lavatories of handicapped	Allow for wheelchair to go under	
Urinals (rim)	1'-10"	2'-0"
Urinals for handicapped	Rim 19" above floor	
Drinking fountain	2'-8"	3'-0"
Drinking fountain for handicapped	Floor mounted 2'-6", wall 3'-0"	
Paper towel dispenser	4'-6"	5'-0"
Towel dispenser for handicapped	2'-8" above floor	
Toilet paper holder	2'-4"	2'-6"

Item	Grades 7 - 12	Adm. & Public
Soap dispenser	6" above lavatory height	
Mirrors (bottom)	3'-9"	4'-0"
Mirror-shelf	3'-3"	3'-6"
Mirror for handicapped	'-8" above floor	
Water closet	15"	15"
Water closet for handicapped	Seat 20" above floor	
Work and sink counters	2'-8"	3'-0"
Chalk boards (bottom)	2'-6"	2'-6"
Width of all chalk boards	3'-6"	3'-6"
Clothes rods and hooks	3'-0"	3'-0"
Hat shelf	3" above clothes rod	
Maximum book shelf height	6'-10"	6'-0"
Shelves (book)	8" wide	
Shelves (reference, magazine)	10 to 12" wide	
Library work room cabinet	32"	32"
Cafeteria work counters	3'-0"	3'-0"
Soiled dish window	6'-0"	6'-0"

3.2 VANDALISM CONSIDERATION

Consideration must be given to designing and equipping a high school to reduce the occurrence of vandalism and theft. Vandalism has currently become the major social and economic problem in many high schools. Several possibilities for reducing vandalism include: providing for a full-time live-in guard for the school, installation of a sound-level warning system, and using as much permanently mounted equipment as possible. Theft can usually be reduced by grouping the primary theft targets into a single high security area.

3.3 LIGHT CONSIDERATIONS

Illumination levels in study and work areas are important considerations to insure the proper educational environment. The following chart is from the South Carolina School Facilities Planning and Construction Guide.

Minimum Levels of Illumination

Area	Foot Candles on Task
Art rooms	70
Auditorium	15
Cafeterias	50
Classrooms	70
Corridors and stairways	20
Kitchens	70
Laboratories	100
Lecture room	70

Area	Foot Candles on Task
Library:	
a. Study and notes	70
b. Ordinary reading	30
c. Stacks	30
d. Check out desk	70
Music room	70
Toilets	30

The best lighting is a combination of natural and artifical illumination, but in utilizing natural light, consideration must be given to avoid direct glare.

3.4 ACCOUSTIC CONSIDERATIONS

In high school classrooms, the optimum reverberation time is between .9 and 1.1 seconds. Classrooms and other space should be designed according to the following sound transmission ratings.

Classrooms	40 db
Music rooms	50 db
Audio/visual	50 db
Kitchen	50 db

3.5 THERMAL CONSIDERATIONS

Control of temperature and humidity levels are necessary for proper learning environments and important from economic and energy conservation aspects. A school should be designed to utilize the most energy efficient fenestration and construction systems. Special emphasis should be given to the utilization of passive solar heating where possible.

3.6 SOUTH CAROLINA SCHOOL FACILITIES PLANNING AND CONSTRUCTION GUIDE

Junior and high school classrooms:

1. Provide a minimum of 720 sq. ft. of floor area.
2. Each classroom shall contain 16 lineal feet of chalkboard, 12 lineal feet of tackboard, and 1 teacher's cabinet.
3. The minimum width of the classroom shall not be less than 24 feet.
4. The minimum ceiling height shall be 9 ft.
5. First floor classrooms on outside walls may have only a single window provided the space is mechanically ventilated or air conditioned.
6. Any classroom located on an exterior wall must have, in addition to the door opening into the corridor, a minimum of one window and a door leading directly to the outside. The door may be eliminated provided the window is operable as an emergency exit.

7. Only internal instructional spaces resulting from a compact building design are accepted without windows and then under the following conditions:
   a. Instructional spaces must be air conditioned.
   b. Provide two widely separated doors to the corridor.
   c. All interior partitions must have a minimum of one hour rating and extend through the ceiling to the roof deck or floor system above.
   d. Provide emergency lighting over a minimum of one door leading to a corridor from each instructional area.
8. All classrooms must have an approved floor covering.
9. All classroom doors must open in direction of egress.
10. The maximum recess of exit doors other than the main entrance shall be 6 feet.
11. All student toilet rooms shall be provided with a bookshelf.

3.7 AMERICAN NATIONAL STANDARDS INSTITUTE DESIGN STANDARDS FOR HANDICAPPED

Parking spaces for handicapped shall be a minimum of 12 feet 6 inches, identified, and located as near as possible to the entrance of the building. One space minimum is required and one space per 50 regular spaces is required.

Ramps shall not have a slope greater than 1 foot rise in 12 feet or be less than 4 feet wide, with a 5 foot level run every 30 feet. Handrails shall be 32 inches in height and extend one foot beyond the top and bottom of the ramp.

The primary entrance to each building shall be usable by people in wheelchairs.

Stairs shall have handrails 32 inches high and at least one handrail that extends 18 inches beyond the top and bottom step.

Toilet stalls shall be at least 3 feet wide and at least 4'-3", preferably 5 feet, deep. Toilet stall doors shall be at least 32" wide and swing out. Stalls shall have handrails

on each side 33" high and parallel to the floor. The water closet shall have a set 20" from the floor.

3.8 SOUTHERN STANDARD BUILDING CODE

Columbia Northeast High School shall be classified as Educational (E) Occupancy, except for the gymnasium which will be Assembly (A) Occupancy.

Every heating appliance which produces an open flame shall be prohibited.

Classrooms in school occupancies shall have at least unilateral light. The window shall be located on the long axis of the room, except where mechanical ventilation is sufficient and footcandle values at desk top or work table level are not below 150 footcandles.

No point in the building shall be more than 150 feet from an exit.

Minimum Occupant Content	Floor Area Per Person
Classroom	20 ft./person
Laboratories/libraries	50 ft./person
Gymnasium/cafeteria	15 ft./person

The capacity or number of persons per unit (22 inches) of exit width through doors, corridors, stairs and other paths of exit shall be 100 persons per unit at level travel and 60 persons per unit at stairs.

Allowable Heights	Allowable Areas		
Type Construction Used	Square Feet per Floor		
	Story Height	First Floor	Second Floor
Type I	No limit	No limit	No limit
Type II	80 ft	No limit	No limit
Type III	Two	18,000	12,000
Type IV	Two	12,000	12,000
Type V	Two	12,000	12,000
Type VI	Two	8,000	8,000

The Columbia Northeast High School must be of Types I or II construction.

CASE STUDIES

4.1 CASE STUDY

Project: Spring Valley High School
Owner: Richland County School District Two
Location: Columbia, South Carolina
Date: 1970
Architect: Lafaye, Lafaye, and Associates

Spring Valley High School is important as a case study because it is in the same school district as the proposed high school and its lack of success as an open plan school influenced the design requirements of the new school.

Spring Valley High School utilizes a "pod" system as a primary organizational and construction unit. The pod typically contains eight classrooms grouped around a central teacher's core.

Positive aspects of the school are:

- The simple construction and organizational use of the pods.
- The use of a core work space for the teachers.

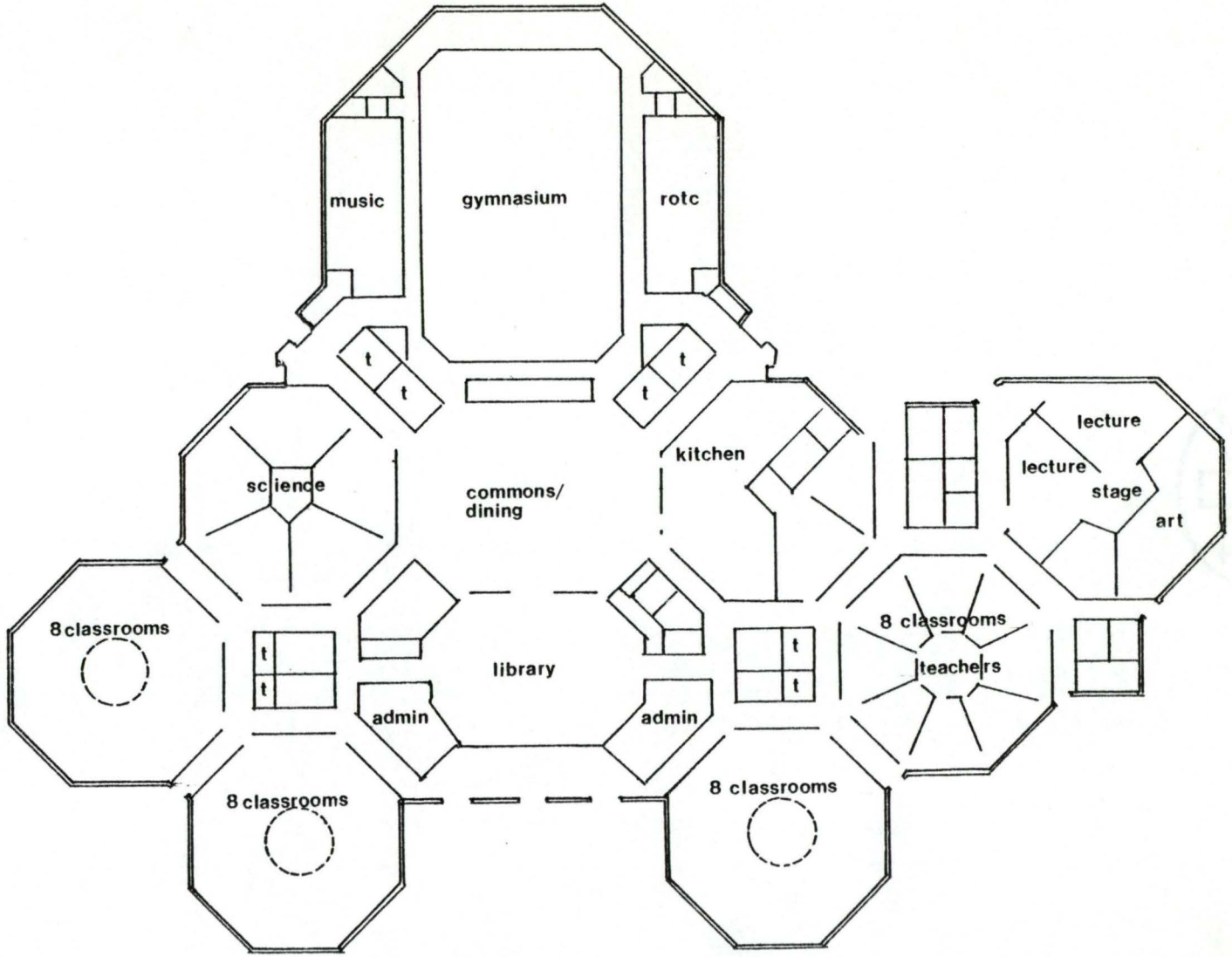
- The gymnasium and locker room layout is functionally well organized.

Negative aspects of the school are:

- The open plan which is well suited to the emphasis on individuality and flexibility in an elementary school is not suited to the curriculum of this school.
- The "pie" shaped layout of the classrroms places the smallest number of students near the front of the room near the instructor and chalkboards.
- Access to certain classrooms requires passage through other classrooms.
- The divisions between the classrooms are not adequate for proper sound isolation.
- The maze-like circulation in the building tends to cause disorientation.
- The pod system causes many spaces to be windowless.

The visual expression of the high school is that of exposed concrete columns and pinkish brick infill

resulting in a generally low key attitude. It is sited in an open, treeless area with no other building forms to relate to.



SRING VALLEY HIGH SCHOOL

4.2 CASE STUDY

Project: Greenwich High School
Location: Greenwich, Connecticut
Date: 1969
Architect: Reid and Tarics Associates

The architects of Greenwich High School utilized a "house" concept to divide the students into four academic and physical groups that are centered around a single student commons area. Although the division of students into houses may not be applicable to the proposed high school, the principal of these houses around a central space could be explored.

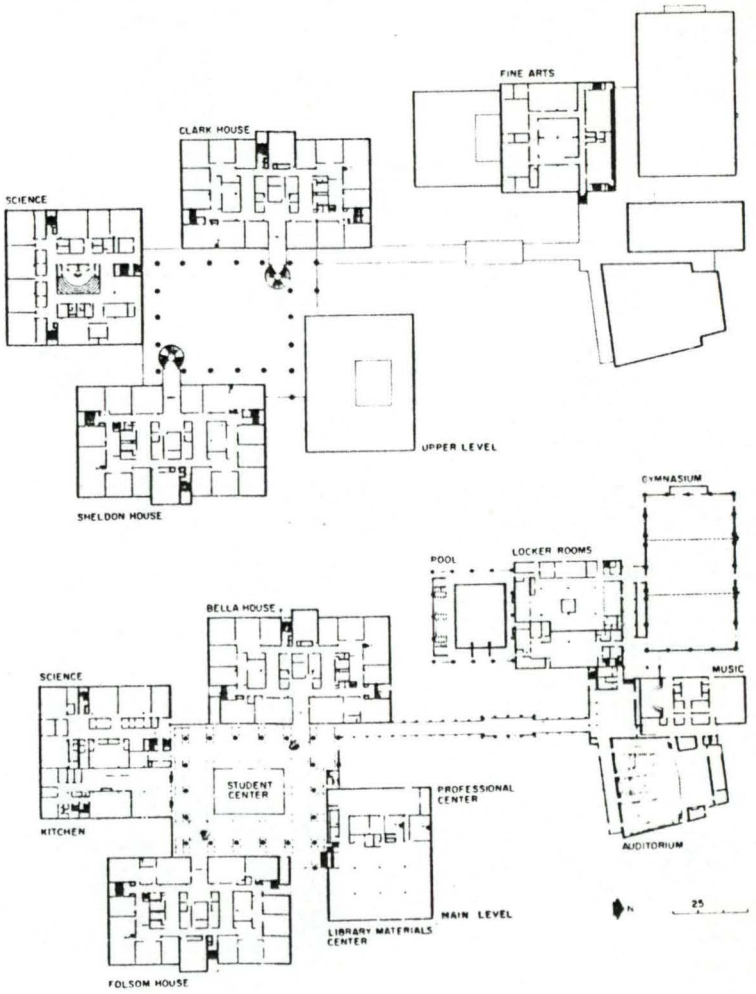
Positive aspects of the school are:

- The organization of the high school into two clusters: one for academic function, the other for specialized arts and physical education.
- The use of a cluster of small scale buildings in a simple vocabulary on the wooded site.

- The school has good accoustic characteristics and built in flexibility to adapt to future change.
- The use of the student commons area to unite the different classroom groups.

Negative aspects of the school are:

- The excessive use of glass which reduces energy efficiency in the building.
- The attempt to use the commons space as both an assembly and circulation space reduces the effectiveness of each.


FINE ARTS
CLARK HOUSE
SCIENCE
UPPER LEVEL
SHELDON HOUSE
GYMNASIUM
POOL
LOCKER ROOMS
BELLA HOUSE
SCIENCE
MUSIC
STUDENT CENTER
PROFESSIONAL CENTER
KITCHEN
AUDITORIUM
MAIN LEVEL
LIBRARY MATERIALS CENTER
FOLSOM HOUSE
N
25

4.3 CASE STUDY

Project: Southside Junior High School
Owner: Bartholomew Consolidated School Corporation
Location: Columbus, Indiana
Date: 1970
Architect: Eliot Noyes and Associates

The architects' concept for this junior high school was to create a small city. Like a city, the school would have its own stores, theater, restaurant, and recreational area. As an organizing element of these city elements, a two-story commons space was developed.

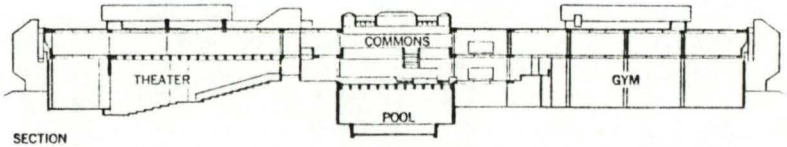
In plan, the bottom floor (not reached by the commons) contains the noisiest activities--the gym, swimming pool, theater and workshops. The intermediate level has the "not quite academic" rooms--art, music and home economics. On the top floor are the classrooms, with each of four clusters including a large resource center, standard size classrooms, smaller seminar rooms, and smallest conference rooms.

Positive aspects of the school are:

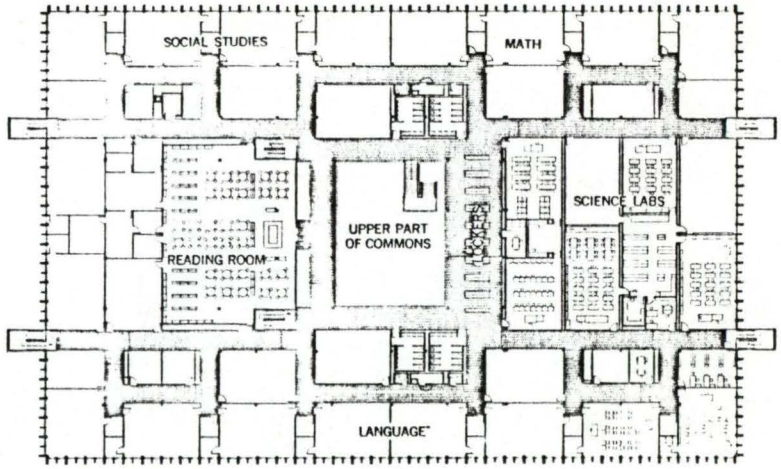
- A convincingly expressed structural system of reinforced concrete which establishes the basic module of the entire building.
- The use of monolithic panels on the facade which act as a combination sunshade and loadbearing wall.
- The use of a short loop system of movement in the classroom area to avoid long corridors.
- The plan arrangement that permits a majority of spaces to receive natural light.
- The separation of noisy and quiet activities.
- The use of a central commons as a focal space.

Negative aspects of the school are:

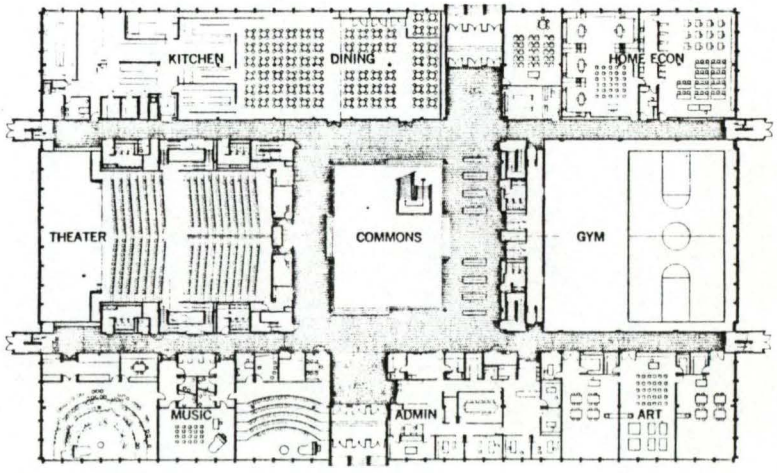
- The use of natural concrete gives a cold expression to the building exterior.
- The highly monumental and imposing character of the school.



SECTION



TOP LEVEL



INTERMEDIATE LEVEL

PROGRAM

5.1 DESCRIPTION

The following design program of spaces, space requirements and relationships, and required areas was developed by the Richland County School District.

RICHLAND NORTHEAST HIGH SCHOOL

Comprehensive Space Requirements	Square Feet
Administration - guidance	8,270
Art	6,000
Athletic (gymnasium)	41,930
Auditorium	17,200
Food services	12,292
Foreign language	5,200
Language arts	11,580
Maintenance	2,845
Mathematics	7,432
Media center	14,240
Music	7,020

Comprehensive Space Requirements (Continued)	Square Feet
ROTC	1,000
Science	10,800
Social studies	9,000
Student activities	2,041
Special services	2,000
Vocational	38,780
Net Area	197,630
Circulation, mechanical, structural @20%	39,526
Gross Area	237,156

5.2 SPACE REQUIREMENTS

Administration - Guidance

Space	Space Relationship	Space Requirement Sq. Ft.
Principal's Office	Located near main entrance Accessible to all areas Away from main traffic paths	250
3 Assistant Principal's Offices	150 sq. ft. each Located throughout the building for student observation	450
3 Anterooms for Principal's Offices	80 sq. ft. each - Waiting area to accommodate 4 people	240
General Office Suite	Located near main entrance easily accessible to visitors. Include receptionist area, waiting area, teachers' mail area, bookkeeper's office, school secretarial office, copy room, general storage room, business record storage, and room for intercommunications system. A small kitchen should be included and restroom facilities. Teachers' lounge in the area. Student records near guidance office.	1800
Conference Room	Related to general office suite and guidance center. Seating for 26 people, 3 doors opening to general office suite, guidance suite, and hallway. Small, walk-in lockable closet. Area for A-V equipment at one end of room.	750

Space	Space Relationship	Space Requirement Sq. Ft.
Attendance Office	Near bus and student pick-up area, also near health room and an assistant principal's office. Away from main office.	700
2 Book Rooms	350 sq. ft. each. One on each floor. Near Assistant Principal's office	700
Health Room	Near bus and student pick-up area and assistant principal's office. One restroom each for boys and girls with a communal shower stall. Lavatory in main room. Area for two cots with a division curtain.	230
Guideance Reception and Waiting Room	For 20 students and 2 secretaries. Located at entrance of guidance suite.	414
6 Individual Counselor Offices	Located behind the reception area. Separate exit from office area. One larger office for guidance director.	672
Testing and Multi-purpose Room	Capable of division into 2 conference areas located in quiet area	800
Reference and Media Center	Shelves for college and career publications	500

Space	Space Relationship	Space Requirement Sq. Ft.
Student Records Room	Accessible to general office suite. Designed as a walk-in fireproof safe	540
Restroom Facilities	Shared by guidance and general office suite	224
Total		8,270

Art Complex

Space	Space Relationship	Space Requirement Sq. Ft.
Office and Reference Area	Office area for 3 teachers. Access to studio-workshops and bulk storage. Provide glazed partition between office and studio workshop.	600
Bulk Storage	Located near office-reference area in the core of the art complex	500
Gallery	Should have an entrance near the main entry of the school. Should be long and narrow with unbroken wall space and glass display areas.	400
Studio-workshop	A large area with a movable walls to be used by more than one class at a time. Entrance to the art complex should be through the art gallery into studio-workshop. Work-shop should provide areas for ceramics, metal work, printmaking, sculpture, stage craft, painting, drawing, photography, and audio-visual materials productions. Dark room and kiln area	2250
Classroom	Provide with tables, sink, flat storage and cabinet area. Glass partition between studios and workshop	1125
Total		4875

Athletic Facilities

Space	Space Relationship	Space Requirement Sq. Ft.
Gymnasium Floor	Provide for 2 full-size cross courts (50x85) and one main court (50x95). Provide markings for at least 4 volleyball and badminton courts on main floor. Use synthetic poured floor.	
Seating	Provide a minimum of 2000 seats. Seats can be folding or permanent	19,520
Varsity Dressing Room (Boys)	Provide large dressing room with oversize lockers for 120 boys. Toilet facilities to include lavatories and water closets. Shower room to be shared with P.E. locker room. Provide 45 to 50 shower heads. Shower room to have roll down doors at each entrance.	3,500
Varsity Storage (Boys)	Provide 2 varsity storage rooms off varsity dressing area and near office area. 20x20 each.	800
Varsity Office (Boys)	Adjacent to varsity dressing and near varsity storage. 400 sq. ft. office and dressing area with 5 lockers, shower and toilet facilities.	800
Training Room (Boys Varsity)	2 Sitz baths and ice machine. Located off boys varsity area.	400

Space	Space Relationship	Space Requirement Sq. Ft.
Towel Room and Laundry	Accessible to towel room in P.E. Located off varsity dressing.	400
Varsity Dressing (Girls)	Locker area for 40 girls similar to boys varsity dressing. Shower room to have 30 stall type showers to be shared with girl's P.E. Provide lavatories and water closets. Shower room to have roll down doors at each entrance.	2,000
Varsity Storage (Girls)	Located off varsity dressing and near varsity office area.	400
Varsity Office (Girls)	Provide office of 350 sq. ft. and locker area with 5 large lockers, toilets and shower room.	600
Towel Room and Laundry (Girls)	Accessible to towel room in P.E. Located off varsity dressing	400
Boys P.E. Locker Room	Provide lockers for 480 pupils. Lockers to have six small lockers in one larger unit. Provide 80 units. Provide toilets and lavatories. Shower room shared with varsity.	2,000
Boys P.E. Storage	General storage near office with exit to main floor	400
Boys P.E. Office	Provide one large office of 250 sq. ft. Provide locker room with 6 lockers, shower, and toilets and lavatory.	500

Space	Space Relationship	Space Requirement Sq. Ft.
Towel Storage Boys P.E.	Towel room serviced by varsity laundry	150
Girls P.E. Locker Room	Provide lockers for 480 pupils. Lockers to have 6 small lockers in one larger unit. Provide 80 units. Provide toilets and lavatories. Shower room shared with varsity.	2,000
Girls P.E. Storage	General storage near office with exit to main floor.	400
Girls P.E. Office	Provide one large office of 250 sq. ft. Provide locker room with 6 lockers, shower and toilets and lavatories.	500
Towel Storage Girls P.E.	Towel room serviced by varsity laundry	150
Instructional Area	Provide area of approximately 24x30 plus large area of 30x72 with folding wall to divide into two areas	In space of folding seating.
Visitor Locker Rooms	Provide two visitor locker rooms accessible to main floor. Provide toilet and shower facilities in each for 30 people.	1,000
Weight Room		1,200
Wrestling and Tumbling Area	Provide 35x35 area to accommodate large mats	In space of folding seating.

Space	Space Relationship	Space Requirement Sq. Ft.
Main Floor Storage	Storage area with 12' ceilings and 8' doors	400
Officials Room	Near main floor. Provide shower, toilet and lavatory.	300
Concession Stand	Locate at outer lobby of gym. Provide counter and rool down door.	300
Ticket Booth and Spectator Restrooms	Ticket booth and restrooms should be located near public entrance of gym.	400
Outside Play Area	Provide large outside area for 2 basketball courts, 6 tennis courts, volleyball and badminton areas.	
Baseball Field	Regulation size. Provide fence.	
Soccer Field and Practice Track	Provide regulation soccer field to be used as junior varsity practice field. Should be encircled with a practice 440 track with a 100 yard dash extension. Provide bleachers for 300 on each side.	
Practice Football Field	Regulation size	
Outside Storage Building	Provide a 20x40 building for maintenance and equipment	800
Total		39,420

Space	Space Relationship	Space Requirement Sq. Ft.
Auditorium		
Stage	Provide 22 ft. high fly space and 12 ft. x 40 ft. proscenium opening. Provide double doors for set and prop moving with adequate backstage area	3,800
Seating	Provide continental seating for 500 people	10,000
Projection Booth		100
Girls Dressing Room	Provide bathroom facilities	700
Boys Dressing Room	Provide bathroom facilities	700
Costume Room	Locate near dressing rooms	500
Prop Storage	Locate near stage	600
Total		17,200

Food Service Facilities

Space	Space Relationship	Space Requirement Sq. Ft.
Dining and Serving Area	Eating area for students and teachers. Provide flexible partitioning. Provide service area with 17' serving table. Provide double tray return at dishwashing area.	
Employees Lounge	Provide window on wall facing office, 10 full built in lockers, sink and mirrow, and first aid cabinet	165
Can Wash Area		45
Rest Room	Near lounge with 2 WC and 2 lavatories	40
Office	Provide 2 glazed walls for observation	80
Storage	Provide door off work area, permanent shelving	585
Canteen	Provide doors to exterior and to preparation area. Provide two 6 foot windows with roll down doors six feet apart. Provide two serving counters and cabinet areas at the windows and work areas behind.	315
Food Preparation Area	Provide: Drain through grate	

Space	Space Relationship	Space Requirement Sq. Ft.
Preparation Area (Continued)	Preparation table with sink Portable stand Meat slicer Hood fire control system Eight mobile pan racks can opener Dough rolling machine Two ranges with oven base Two deep fat fryers Four pass through hot food cabinets Four pass through coolers Eight compartments serving steam tables with make-up table on end Conveyer Steam cooker and tilting kettle with hose reel Two deck ovens Ice machine on wall near serving area Three portable ingredient bins Two convection ovens Portable proof cabinet Two 30 qt. mixers; one in bake area and one in meat area Four milk boxes One pre-wash sink One three compartment sink Two hand wash sinks in preparation area: one on exterior lounge wall and one on exterior storage room wall Serving counter with provisions for holding cold and hot plates Work table with sink on end, utility drawers, electrical outlet and overhead rack for canned vegetables	

Space	Space Relationship	Space Requirement Sq. Ft.
Preparation Area (Continued)	Work table with double sink in center of table, utility drawers and electrical outlet for fresh vegetables. Work table with small sink on end, utility drawers, and electrical outlet for meat. Work table with small sink on end, utility drawers and electrical outlet for baking (free standing). Work table (all purpose) with drawers and electrical outlet in front of deck ovens.	1,485
Dishwashing Area		315
Total		11,968

Maintenance

Space	Space Relationship	Space Requirement Sq. Ft.
Storage Area	One large area near loading ramp	1,000
Loading Dock	Accessible to tractor trailer trucks. Provide area for dumpsters	
Head Custodial Office	Near central receiving dock	150
Rest Room	Provide toilet facilities, shower and 10 lockers	50
4 Janitorial Closets	300 sq. ft. each. Provide floor sinks in each. Locate throughout the building.	1,200
Total		2,400

Mathematics Department

Space	Space Relationship	Space Requirement Sq. Ft.
8 Classrooms	720 sq. ft. each. Provide accoustical folding partitions to make 4 large classrooms	5760
Math Lab	Similar to classroom	720
Conference and Seiminar Room		144
Teacher Work Area	Space for 8 teachers	700
Equipment Storage		108
Total		7432

Media Center

Space	Space Relationship	Space Requirement Sq. Ft.
Circulation and Catalog Area	Near main entrance, work area and reserve collection. Provide square circulation desk and card catalog with 120 drawers, 6 drawers high.	1,000
Reading, Browsing, Seating Area	Near card catalog and periodical reference. Provide seating for 175 students. 30% of the seating should be in carrels at least 36" wide. Provide a mixture of lounge and table seating. Provide shelves in the reference area, low and 12" wide with study tables nearby. Provide metal cabinet for microfilm and shelving for 100 current magazines. Provide 500 linear feet of 12" shelves for periodical and reserve collection	7,000
Housing for Books and Audio-Visual Hardware	Provide open shelving. Orient shelving for best visual control from circulation desk.	1,200
5 Conference Rooms	Provide 3 rooms at 150 sq. ft. and 2 rooms at 120 sq. ft. Locate in quiet area of media center adjoining reading area. Glazed partitions can be used but sound and light control are important	690

Space	Space Relationship	Space Requirement Sq. Ft.
Classroom/ Television Studio	Opens off reading area. Provides partially glazed partitions, light and sound control which are important.	800
Periodical Storage	Accessible from reading room. Provide 6' high divisible shelving.	400
Library Offices	3 offices at 150 sq. ft. each. The office of head librarian should be accessible to the rest of the school as well as the media center	450
Technical Procession Workroom	Locate near office area; with glazed partitions. Provide shelving and storage and a sink.	600
Audio-Visual Work Storage Area	Locate near elevator and production area. Provide deep shelving and good security.	400
Audio-Visual Production Lab	Locate adjacent to equipment storage. Temperature and humidity control is important. Provide 3 taping booths, 2 sinks, cabinet space	700
Dark Room	Locate off production lab. Provide sink.	150

Space	Space Relationship	Space Requirement Sq. Ft.
Central Distribution of ETV	Locate near production lab. Can be used as office space. Provide shelving.	150
Professional Library	Could also be used as teacher lounge and workroom. Provide shelves and lounge type furniture.	600
Rest Rooms	50 sq. ft. each	100
Total		14,240

Foreign Language Department

Space	Space Relationship	Space Requirement Sq. Ft.
5 Classrooms	720 sq. ft. each	3,600
Language Lab		900
Teachers Area	Space for three teachers	700
Total		5,200

Language Arts Department

Space	Space Relationship	Space Requirement Sq. Ft.
11 Classrooms	720 sq. ft. each	8,910
Reading Lab	Provide 10 individual learning centers, a closet for storage of A-V equipment, 5 tables, and permanent bookshelves	900
3 Teacher Storage Area	400 sq. ft. each	1,200
Teacher Work Area		570
Total		11,580

Music Department

Space	Space Relationship	Space Requirement Sq. Ft.
Band Rehearsal Room	Provide 20' high ceilings. Provide 4 ft. wide entrance with shelves on either side for books. Provide side doors to a loading area.	
4 Practice Rooms	100 sq. ft. each. Soundproof doors with double glass panels.	400
Uniform Storage	Built in storage cabinets. No windows.	384
Instrument Storage	Built in shelves on movable tracks. Double doors. No windows.	250
Director's Office	Glass partition facing rehearsal area.	100
Music Library	Located next to the director's office. Provide 3 to 5 stalls for listening to records. Built in shelves along one wall.	100
Restrooms	Locate for accessibility to band and choral when rest of the building is closed.	200
Choral Rehearsal Room	Built in risers of 10" high and 3' wide. Provide 20' high ceilings. Built in shelves at entrance.	2,209
3 Individual Practice Rooms	Soundproof door with glass panels 96 sq. ft. each	288

Space	Space Relationship	Space Requirement Sq. Ft.
Small Choral Group Practice	For 30 students. Provide shelves on one wall and glass in door.	700
Music Library	Locate adjacent to director. 4 to 6 listening stalls. Provide shelving.	100
Director's Office	Glass partition facing rehearsal area	100
Robe/Uniform Storage	No windows, Provide built in cabinets.	180
Total		7,220

ROTC Department

Space	Space Relationship	Space Requirement Sq. Ft.
Office		100
Supply Room	Room to be fully enclosed with entrance from classroom. Provide racks and shelving for clothes.	180
Classroom		720
Total		1,000

Science Department

Space	Space Relationship	Space Requirement Sq. Ft.
5 Classrooms	Biological, chemical, and physical classroom/lab configurations. 5 classrooms at 1000 sq. ft. each.	
4 Labs	1025 sq. ft. each.	9,100
Chemical Storage	Ventilated area with shelving	300
Instrument Storage	Provide shelving	225
Biological Storage	Provide shelving	225
Audio-Visual Workroom	Two small adjacent spaces that can be used as one. Soundproof	300
Teachers' Work Area	Locate centrally	250
Dark Room	Provide sink and shelving	200
Student/Teacher Conference Room		200
Total		10,800

Social Studies

Space	Space Relationship	Space Requirement Sq. Ft.
10 Classrooms	750 sq. ft. each.	7,500
2 Workrooms	750 sq. ft. each.	1,500
Total		9,000

Student Activities

Space	Space Relationship	Space Requirement Sq. Ft.
Meeting Room	Divisible into 4 rooms. Accommodates 100 people. Locate for evening use and near restrooms.	900
3 Workrooms		504
Office		120
Storage		36
5 Storage Areas	96 sq. ft. each. Storage for various activity groups.	481
Total		2,041

Special Education Department

Space	Space Relationship	Space Requirement Sq. Ft.
Classroom	Provide storage space. Located near restroom facilities. Provide observation area with separate entrance. Provide sink.	720
Classroom	Provide two movable partitions	720
Conference Room		260
3 Offices	100 sq. ft. each	300
Total		2,000

Vocational

Space	Space Relationship	Space Requirement Sq. Ft.
Distributive Education Lab	Provide movable glass case	1,050
Teacher's Office	Provide glass partition between lab and office.	100
Storage/Workroom	Provide double sink and counter	130
Display Case	Lighted and facing corridor	50
Office Occupations		
Bookkeeping Lab	Provide screen mounted on one wall and open shelving	1,200
Typing I Lab	Provide screen mounted on one wall and open shelving	1,200
Typing II Lab	Provide screen mounted on one wall and open shelving	1,200
Office Practice Lab	Provide 350 sq. ft. connecting room for duplicating machines	1,550
Keypunch Lab	Provide screen mounted on one wall and open shelving	1,050
Lecture Room	Similar to classroom space	720
Teacher's Office	Provide glass partition into lab	150

Space	Space Relationship	Space Requirement Sq. Ft.
Cosmetology Lab	Provide wall mounted sinks and floor electrical outlets for hair dryers.	2,500
Office-Library	Provide open shelving and work area, should have visual control over lab.	100
Dispensary	Provide double sinks and counters with lockable cabinets	125
Dressing Rooms	Provide 4 small changing rooms	100
Child Care Child Care Lab	Locate near entrance to school and directly accessible to protected outdoor play area. Scale all items to age range 3-5.	1,200
Observation/ Seminar	Conference type room with a two-way viewing mirror.	500
Kitchen	Compact facilities for small meal preparation, provide 50 sq. ft. of storage	150
Restroom	Child size facilities	100
Teacher's Office		100
Drafting Lab	Provide floor mounted electrical outlets. Provide double sink and counter space.	2,000

Space	Space Relationship	Space Requirement Sq. Ft.
Office-Library	Provide glass partition between office and lab. Provide open shelving.	100
Storage		100
Vocational Rehabilitation Secretary/ Reception	Provide small waiting area.	220
Administrative Offices	Provide 2 offices at 150 sq. ft.	300
Counselor Offices	Two offices at 150 sq. ft. with an adjoining 70 sq. ft. storage area.	370
Testing Area	Soundproof testing room with 80 sq. ft. of storage	250
Evaluation and Conference Room	Provide a conference table	
Evaluation Area	Provide 90 sq. ft. of storage	380
Automobile Mechanics Lab	Provide 12 ft. ceilings and 14 ft. wide roll-up doors to outside. Provide personnel door to outside and sink area	3,500

Space	Space Relationship	Space Requirement Sq. Ft.
Tool Room	Provide Dutch door and open shelving	100
Office/Library	Provide glass partition into lab	100
Building Construction Lab	Provide 12 ft. high ceilings and 14 ft. wide roll-up doors to outside, provide personnel door to outside and sink area	3,500
Tool Room	Provide Dutch door and open shelving	100
Office/Library	Provide glass partition into lab	100
Power Mechanics Lab	Provide 12 ft. ceilings and 14 ft. wide roll-up doors to outside. Provide personnel door to outside and sink area	3,500
Tool Room	Provide Dutch door and open shelving	100
Office/Library	Provide glass partition into lab	100

Space	Space Relationship	Space Requirement Sq. Ft.
General		
5 Classrooms	Provide 1 classroom between each vocational shop space and two other classrooms at 720 sq. ft. each.	3,600
Administration	Provide for vocational director and a secretary. To be located with other administrative offices	200
Total		35,805

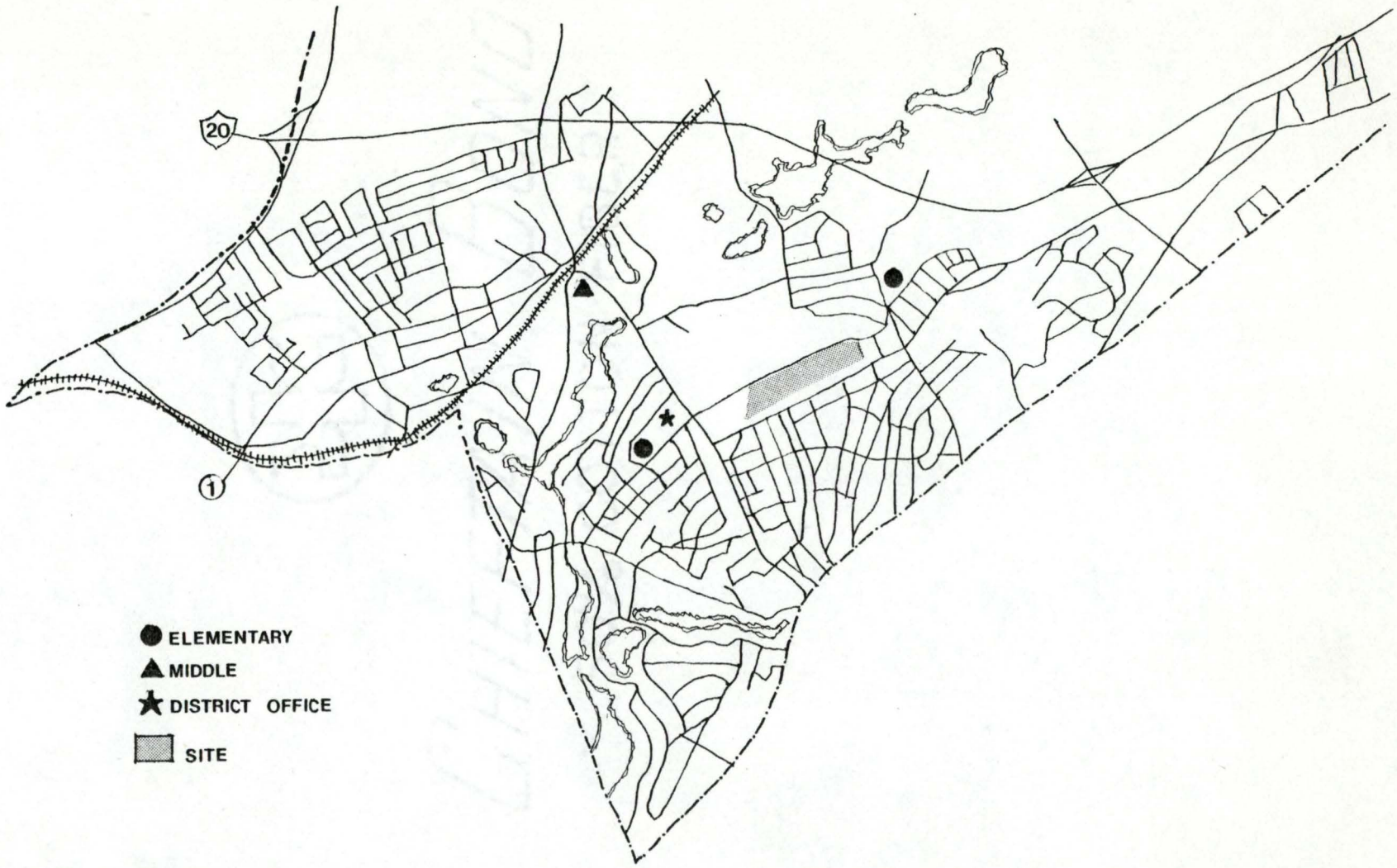
SITE

6.1 SITE

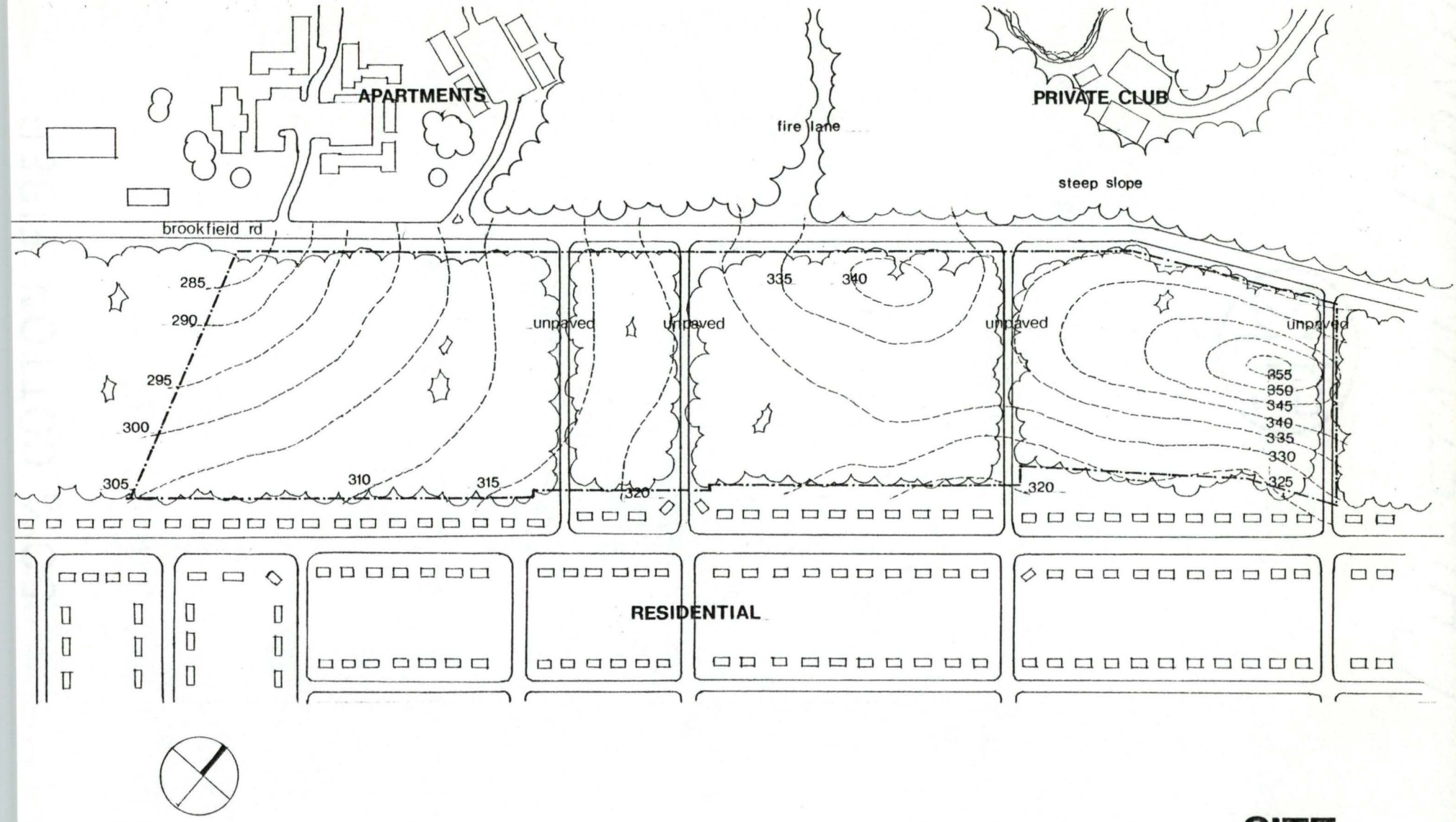
The site for the Richland Northeast High School is a long, narrow tract of land in the Dentsville area of the school district. The 50 acre site was chosen because of its proximity to the more densely populated region of the district and because it is one of the few tracts of land in the area that meet South Carolina Department of Education size requirements for school sites.

The site, which was used as a Prisoner of War Camp during World War II, contains no buildings, but is criss-crossed by several dirt roads. The site is generally wooded with pines and a few hardwoods. The site is bounded by small residences along Farroway Drive on the south and Brook-field Road on the north. Brookfield Road will serve as the primary vehicular access road for the school. Access from Farroway Drive is to be avoided becasue of the conflict with residential traffic.

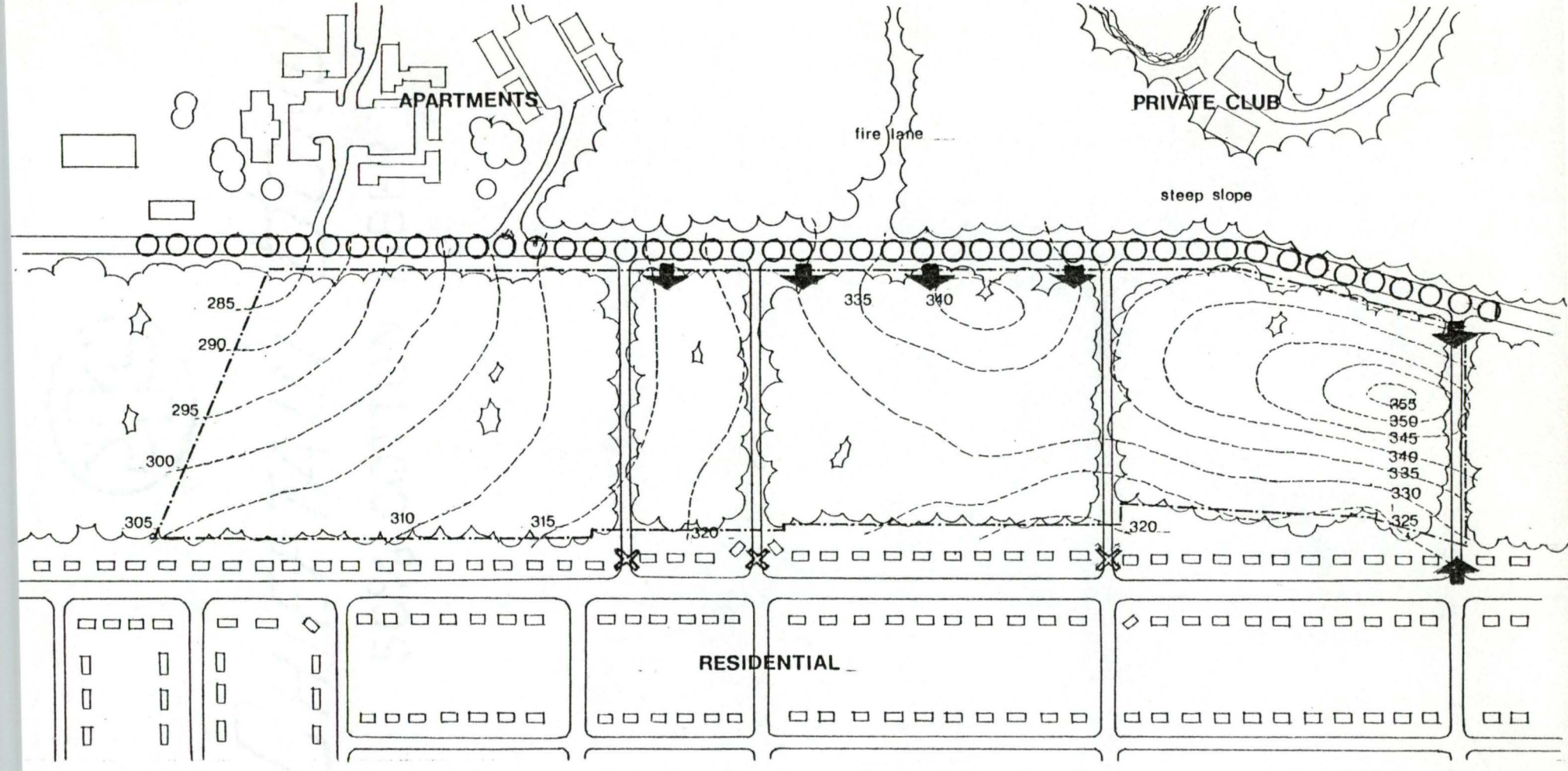
There is a gradual east to west slope over most of the site, culminating in a pronounced hill at its eastern end. The better views from the site are towards the undeveloped open wooded area to the north.



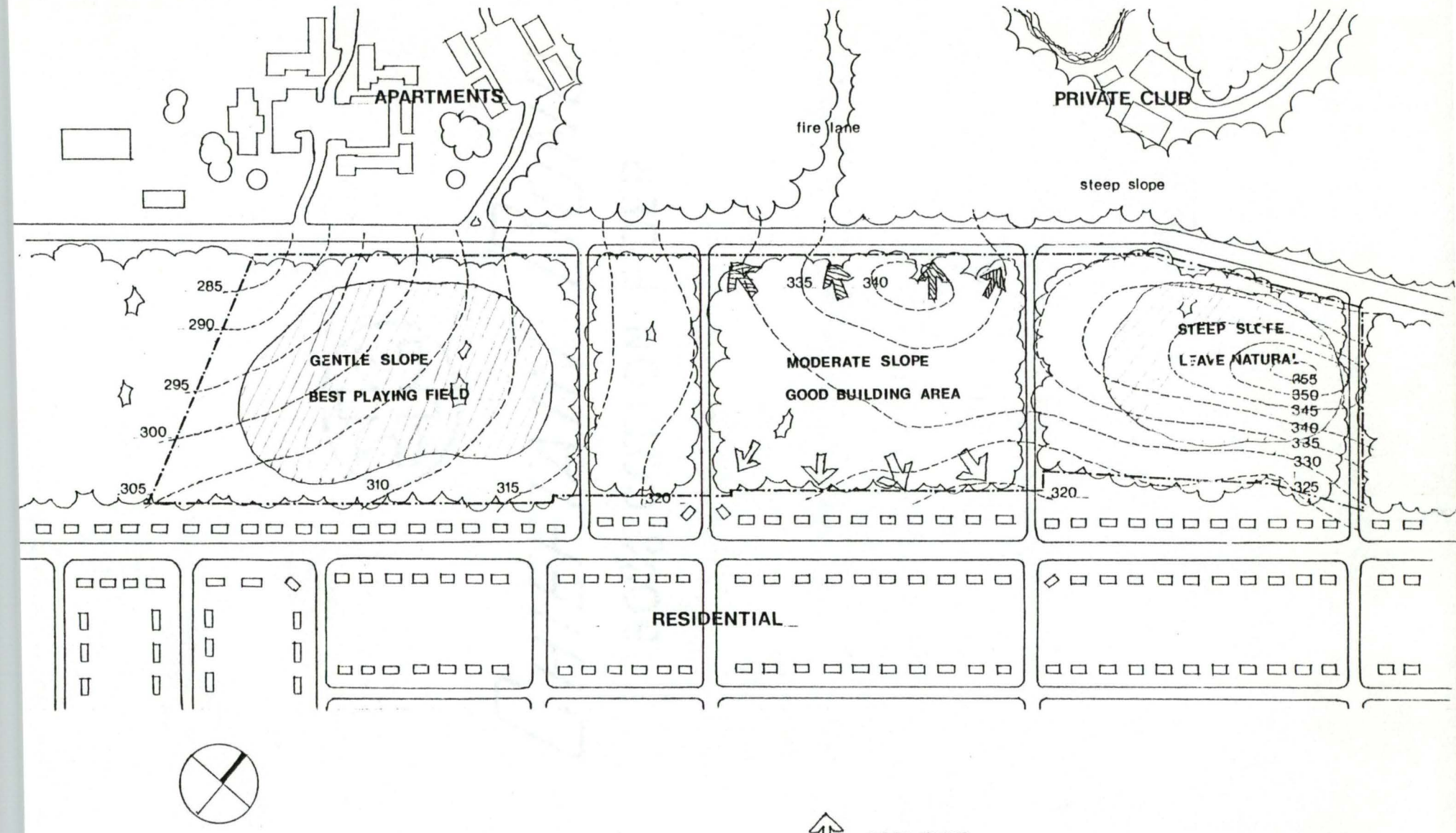
ATTENDANCE AREA


APARTMENTS
fire lane
PRIVATE CLUB
steep slope
brookfield rd
285
290
295
300
305
310
315
320
335
340
unpaved
unpaved
unpaved
unpaved
355
350
345
340
335
330
325
320
RESIDENTIAL

SITE



SITE ANALYSIS



SITE ANALYSIS

6.3 LOCATION OF STUDENTS

The Richland Northeast High School area student population is 72% white; 24% black, and 3% other.

Most of the students who attend the high shool live within an approximate 3 mile radius of the school. The School District anticipates the transportation of the students will be as follows:

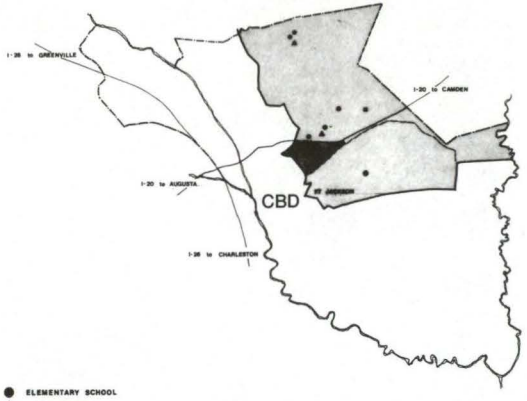
15% Walking

5% Bicycle

30% Personal Car

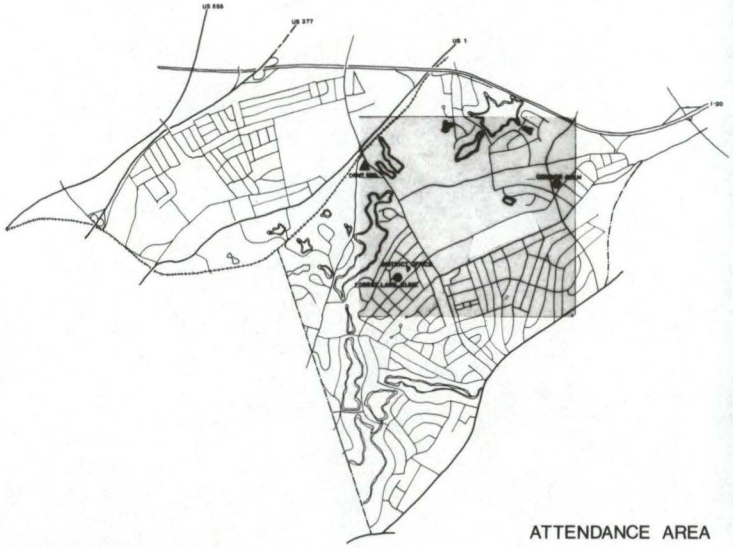
40% School Bus

ARCHITECTURAL SOLUTION



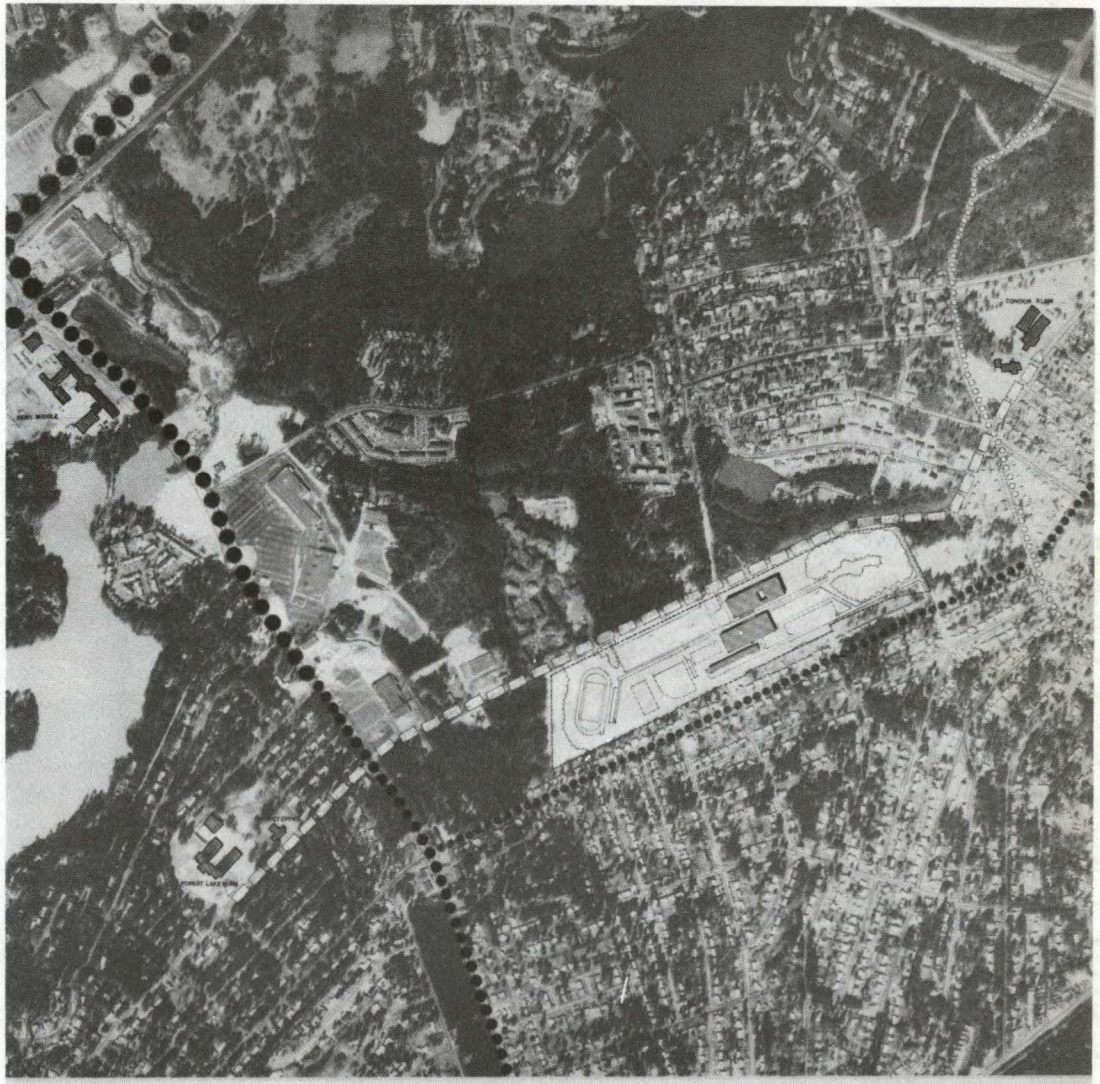
● ELEMENTARY SCHOOL
▲ MIDDLE SCHOOL
■ HIGH SCHOOL

RICHLAND COUNTY / SCHOOL DISTRICT TWO



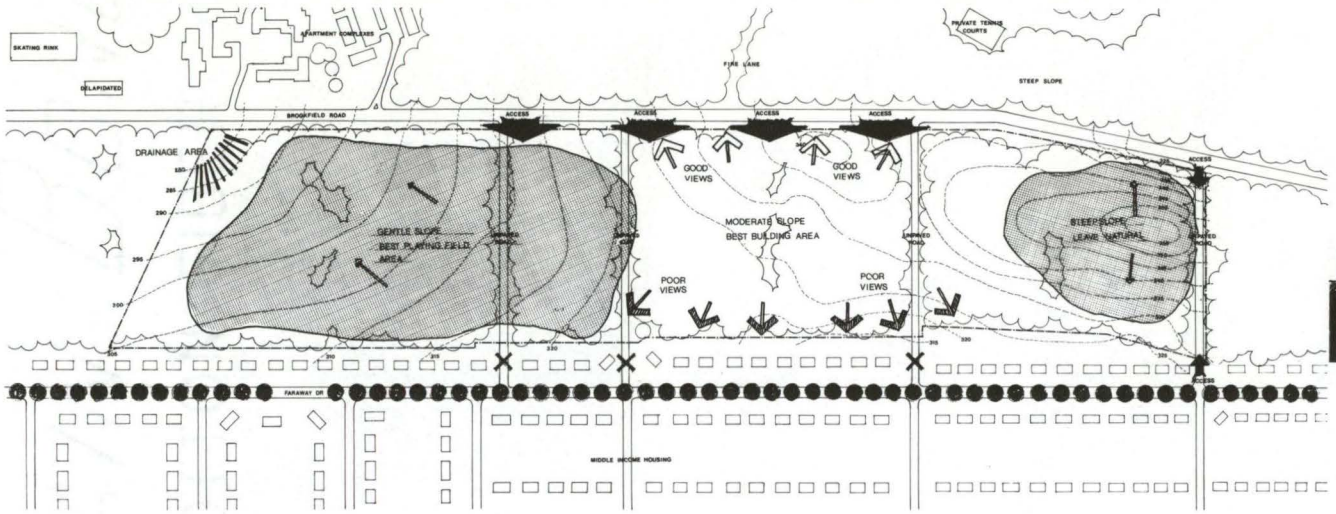
ATTENDANCE AREA

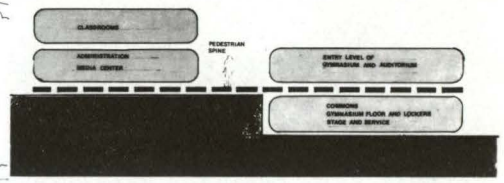
LOCATOR



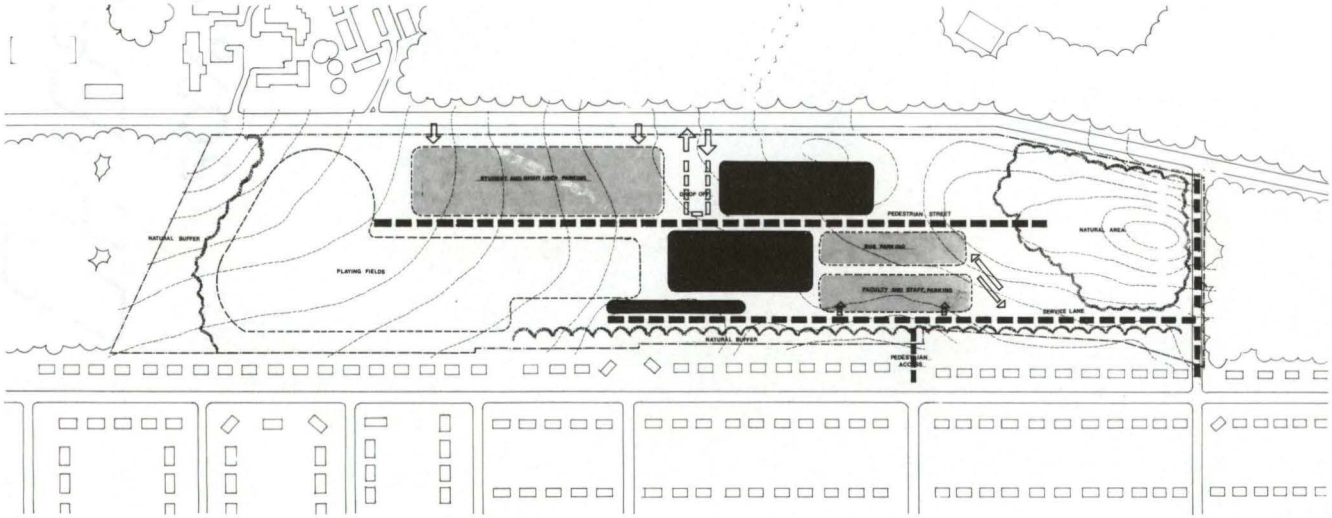
1550 vpd 3600 vpd 12600 to 17800 vpd
25200 vpd major bus lane commercial

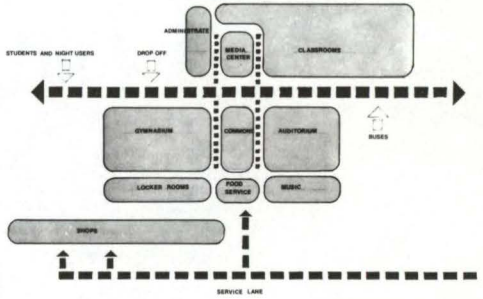
VICINITY





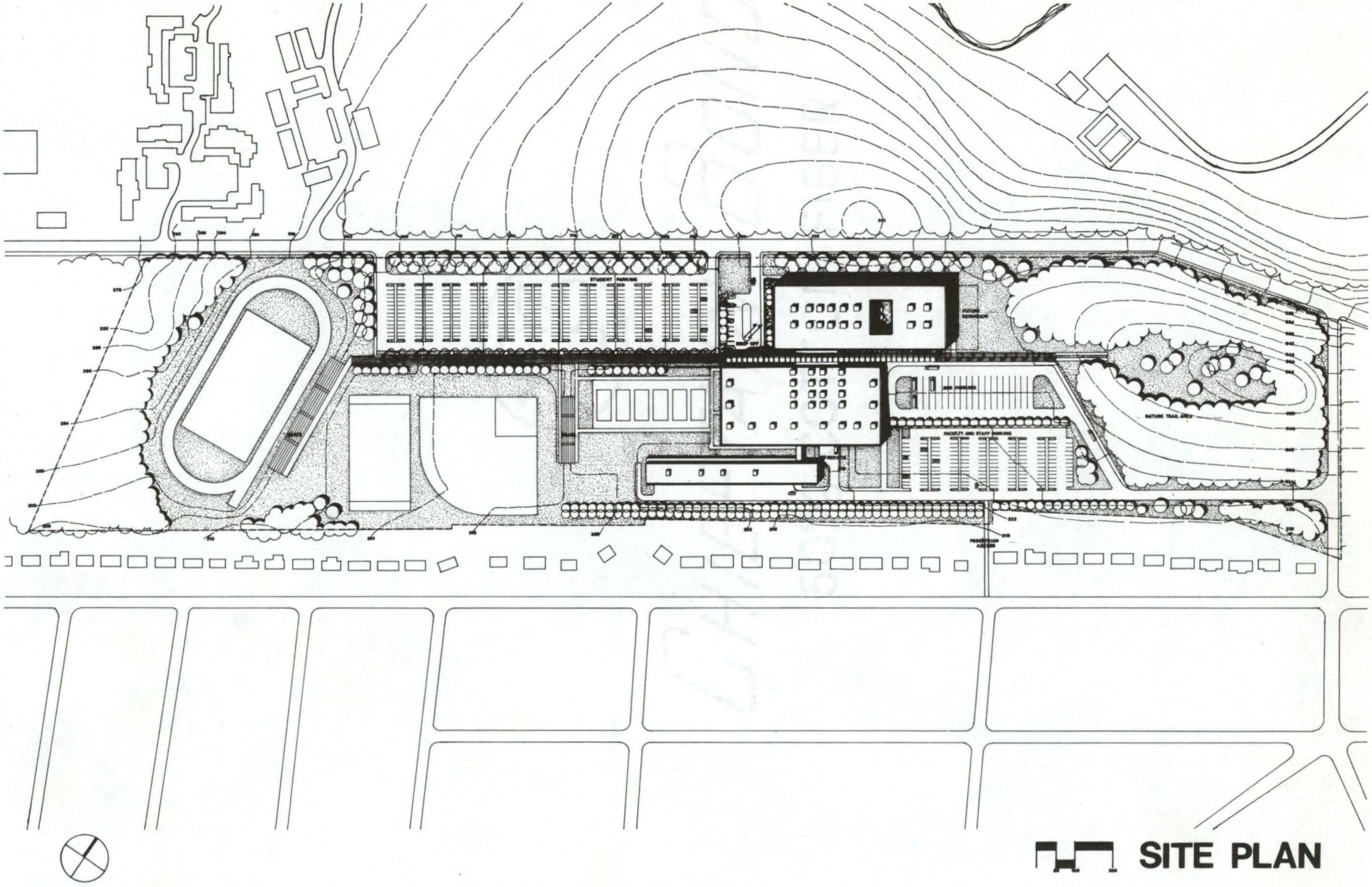
SECTION



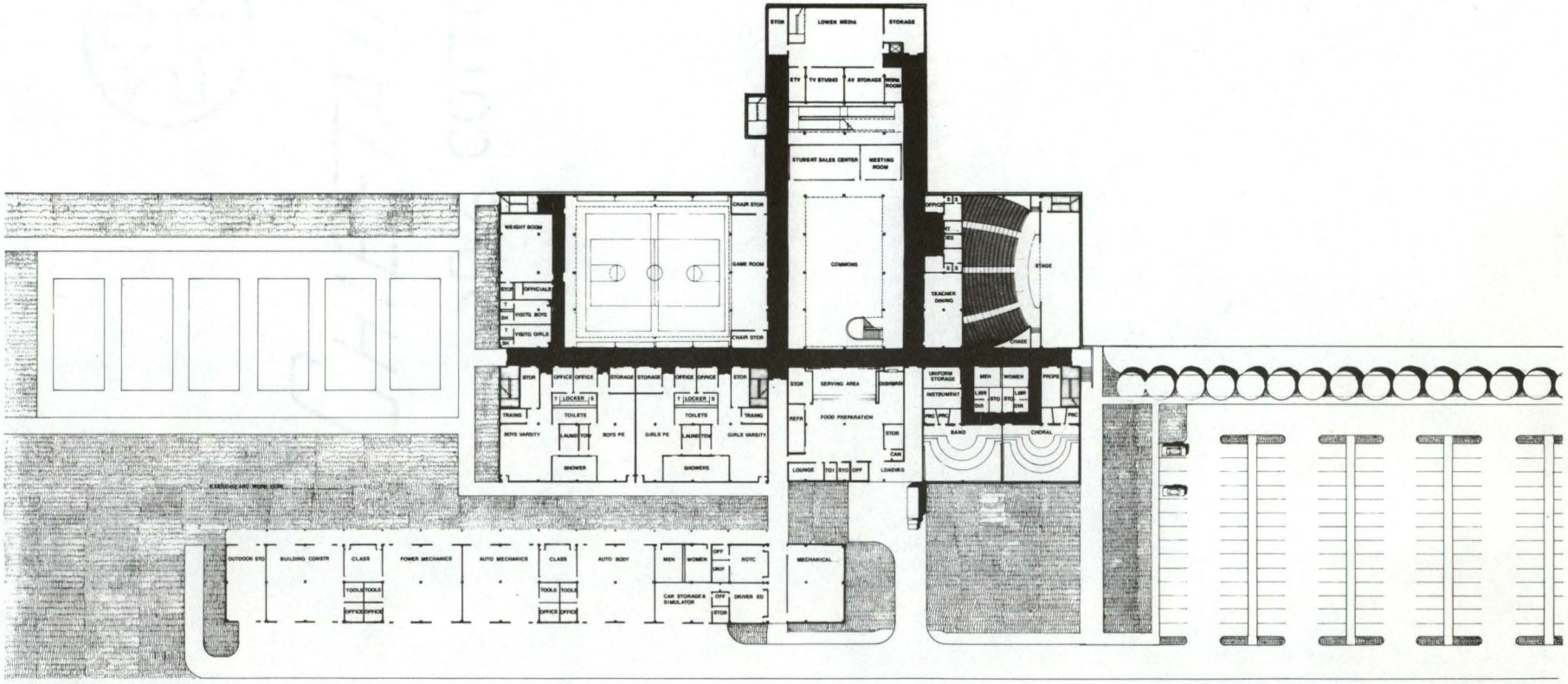


PLAN

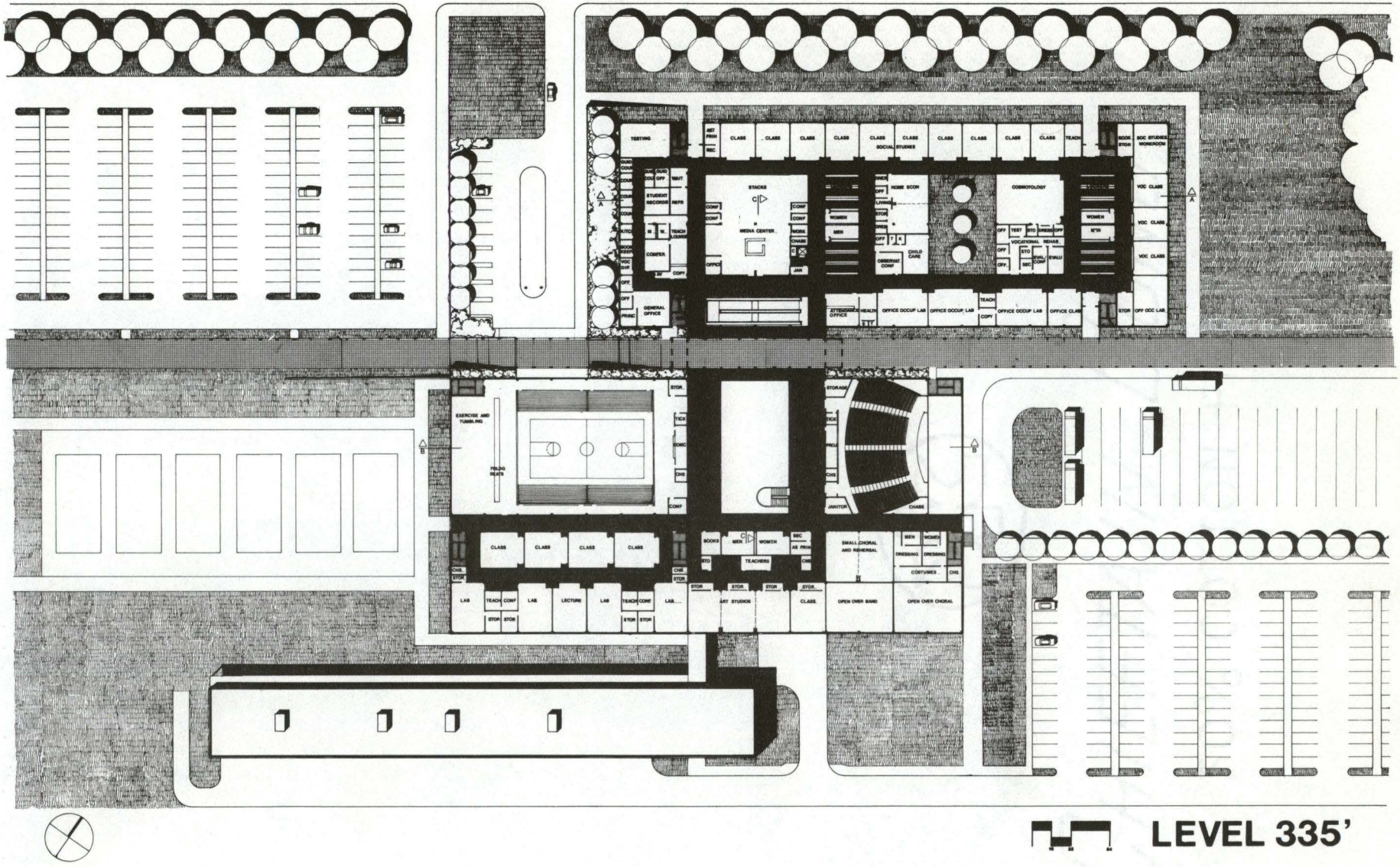
ANALYSIS AND CONCEPTS


STUDENT PARKING
FUTURE EXPANSION
FACULTY AND STAFF PARKING
NATURE TRAIL AREA

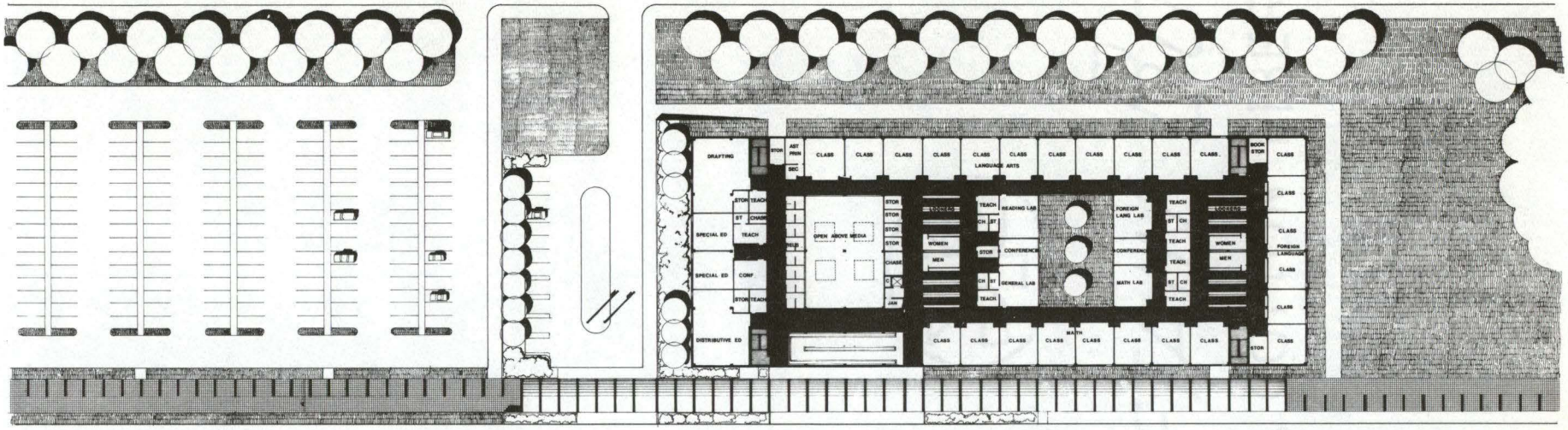
SITE PLAN

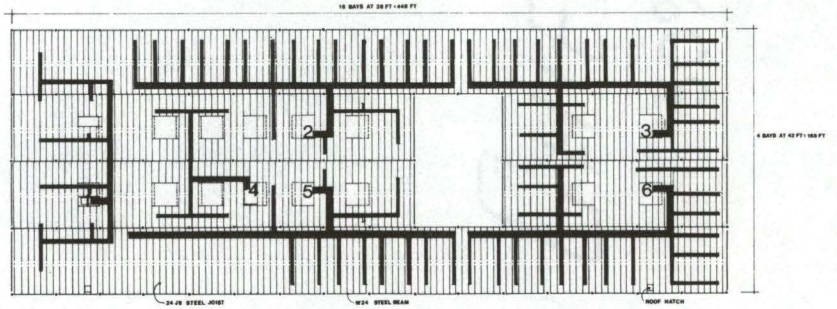

STOR
LOWER MEDIA
STORAGE
ETV
TV STUDIO
AV STORAGE
WORK ROOM
STUDENT SALES CENTER
MEETING ROOM
WEIGHT ROOM
STO
OFFICIALS
VISITG BOYS
VISITG GIRLS
CHAIR STOR
GAME ROOM
COMMONS
OFFICE
TEACHER DINING
STAGE
CHAIR STOR
STOR
OFFICE
OFFICE
STORAGE
STORAGE
OFFICE
OFFICE
STOR
LOCKER
TOILETS
LAUNDRY
TRAING
BOYS VARSITY
BOYS PE
GIRLS PE
GIRLS VARSITY
SHOWER
SHOWERS
STOR
SERVING AREA
REFR
FOOD PREPARATION
STOR
CAN
LOUNGE
TOI
STO
OFF
LOADING
UNIFORM STORAGE
INSTRUMENT
MEN
WOMEN
STO
PROPS
BAND
CHORAL
EXERCISE AND WORK YARD
OUTDOOR STO
BUILDING CONSTR
CLASS
TOOLS
OFFICE
POWER MECHANICS
AUTO MECHANICS
CLASS
AUTO BODY
MEN
WOMEN
OFF
UNIF
ROTC
MECHANICAL
CAR STORAGE & SIMULATOR
DRIVER ED
STOR

LEVEL 320'

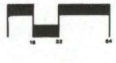

TESTING
SOCIAL STUDIES
STACKS
MEDIA CENTER
HOME ECON
COSMETOLOGY
VOCATIONAL REHAB
CHILD CARE
GENERAL OFFICE
ATTENDANCE OFFICE
HEALTH
OFFICE OCCUP LAB
OFFICE CLASS
EXERCISE AND TUMBLING
FOLDG SEATS
STORAGE
JANITOR
CLASS
TEACHERS
SMALL CHORAL AND REHEARSAL
DRESSING
COSTUMES
LAB
LECTURE
ART STUDIOS
OPEN OVER BAND
OPEN OVER CHORAL

LEVEL 335'

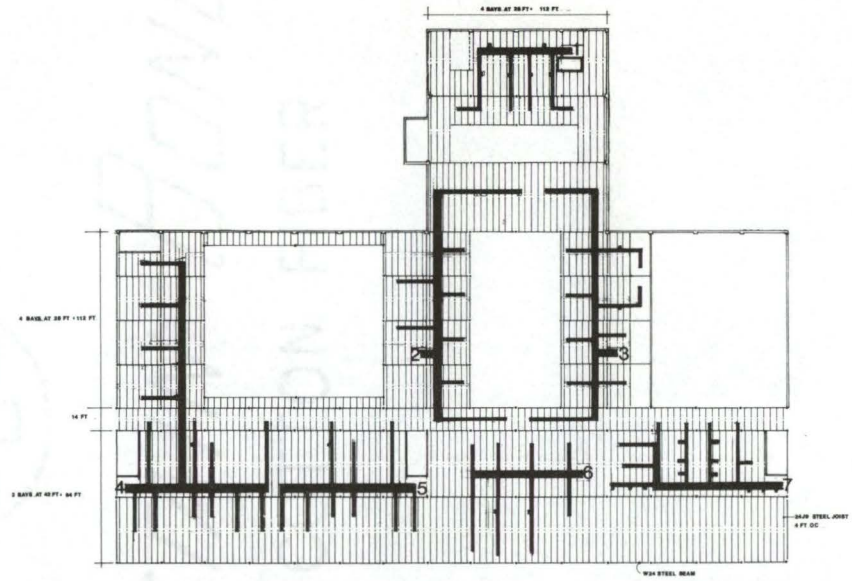


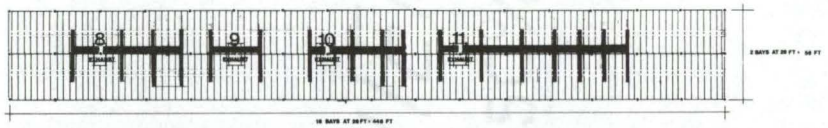


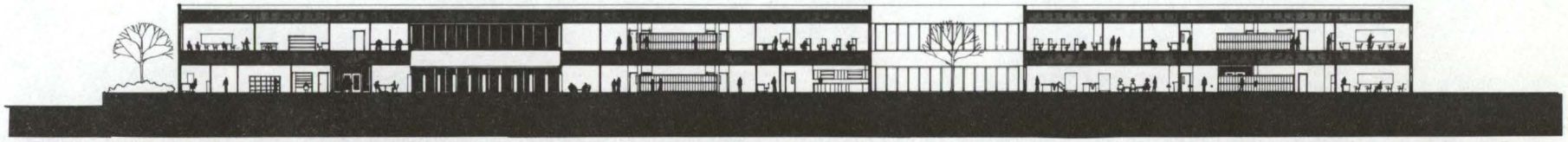
STRUCTURAL AND MECHANICAL PLAN



LEVEL 350'

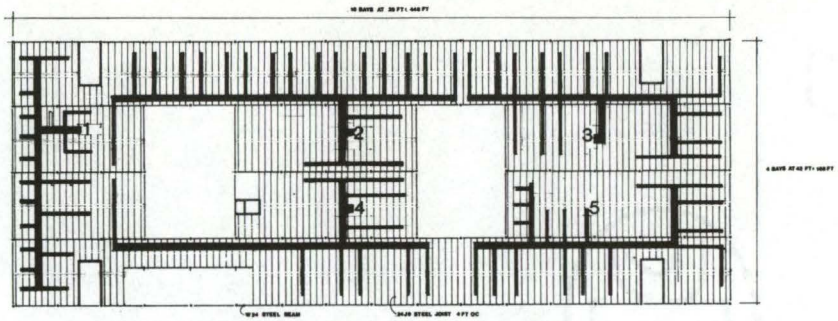


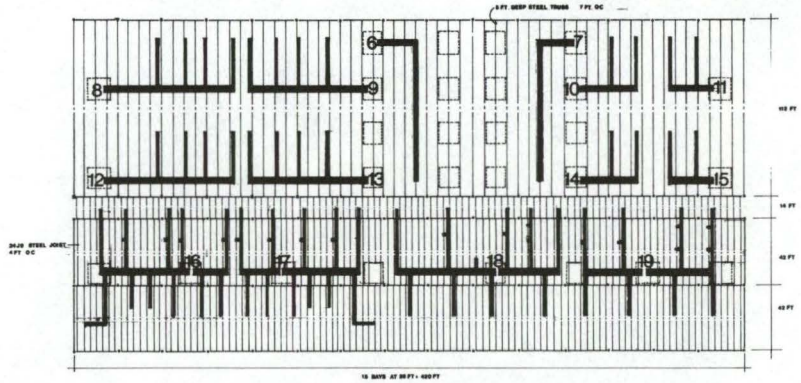


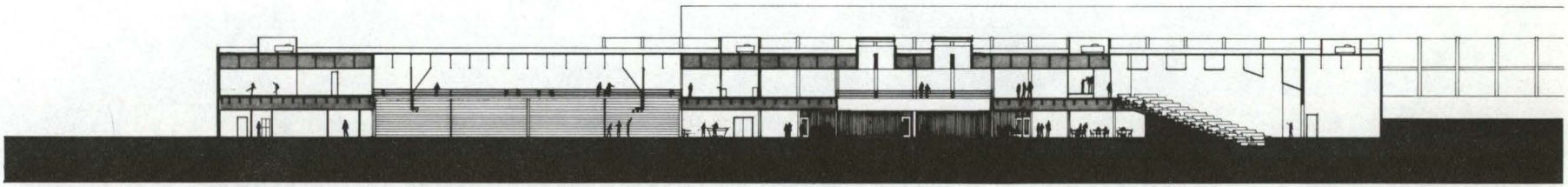


STRUCTURAL AND MECHANICAL PLAN

SECTION A·A

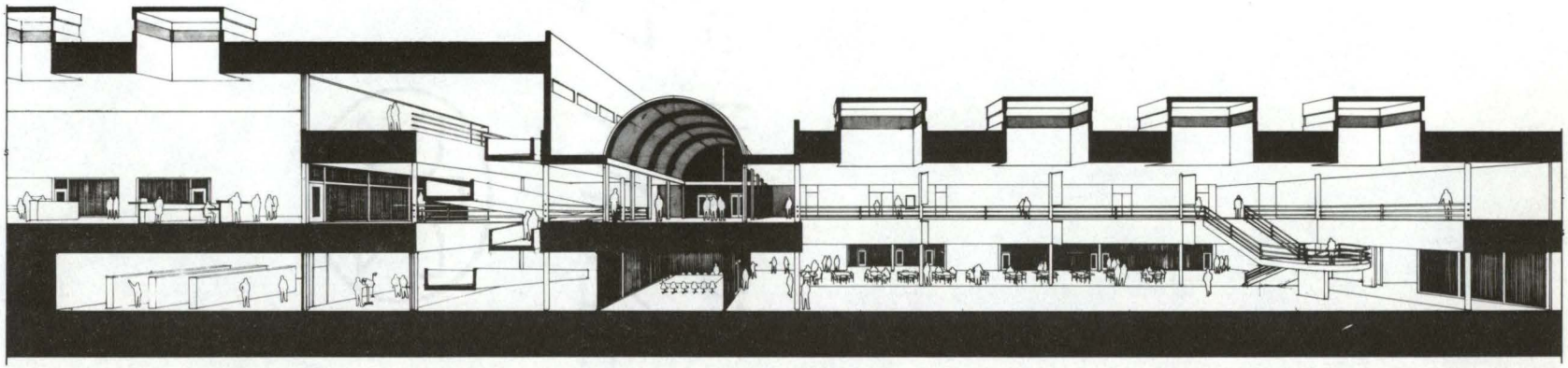




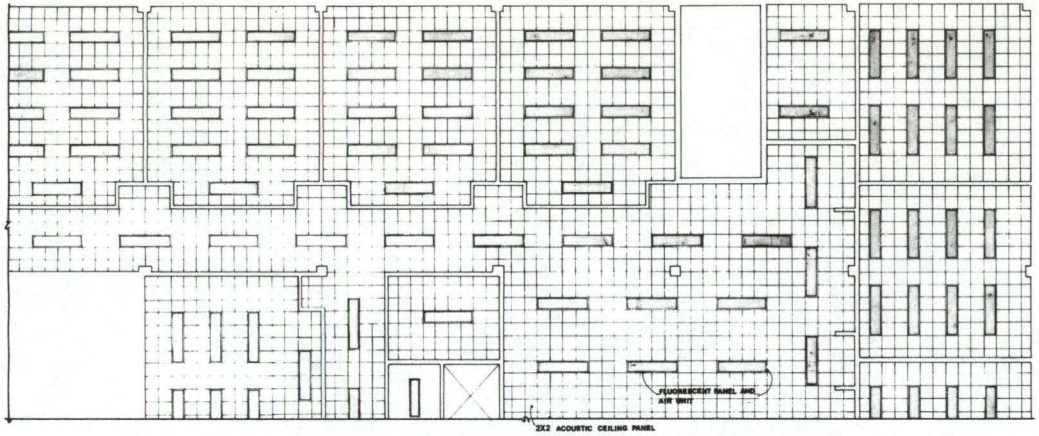


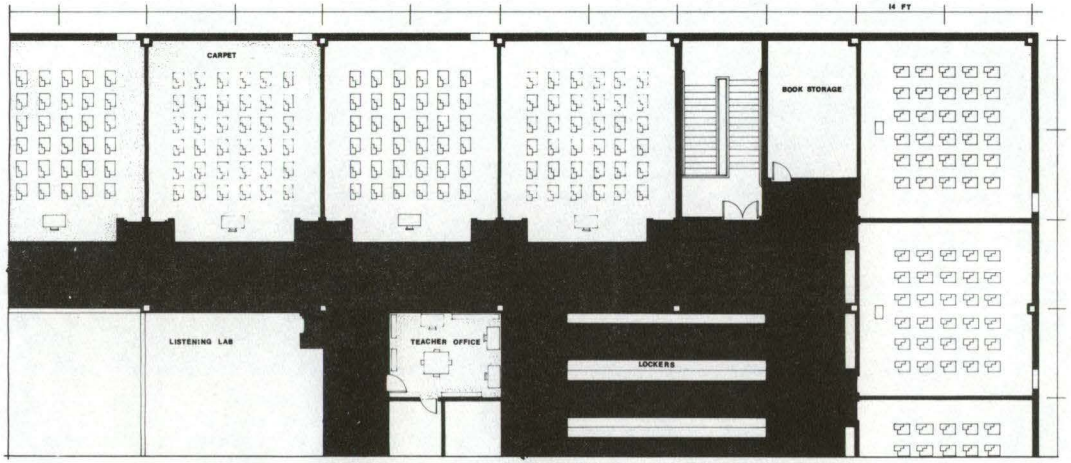
STUCTURAL AND MECHANICAL PLAN

SECTION B-B

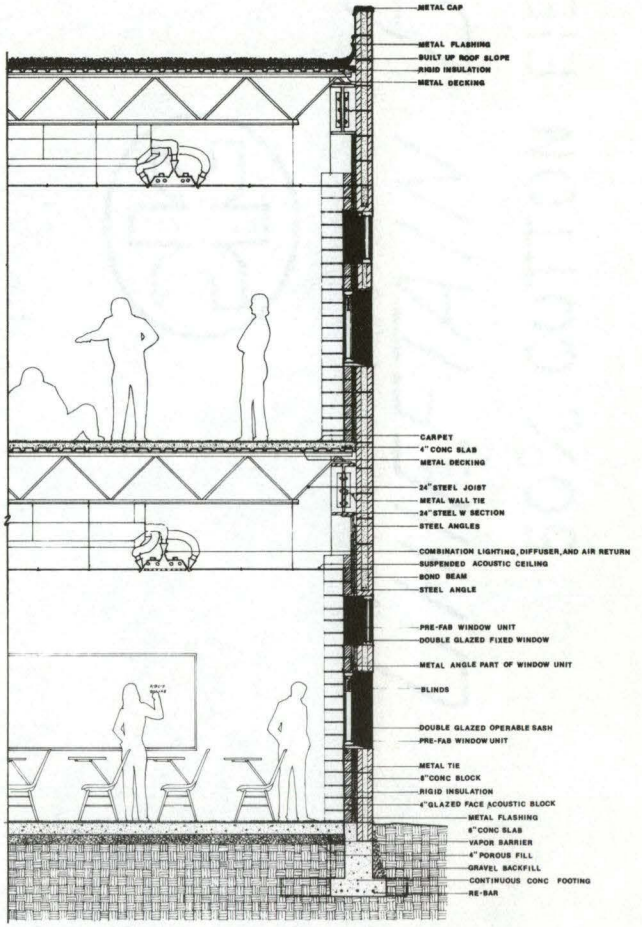


SECTONAL PERSPECTIVE C-C

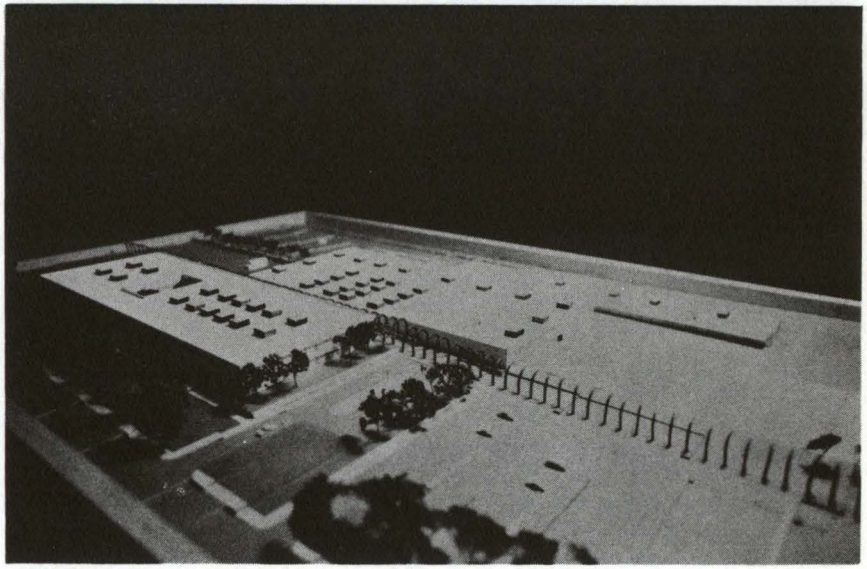


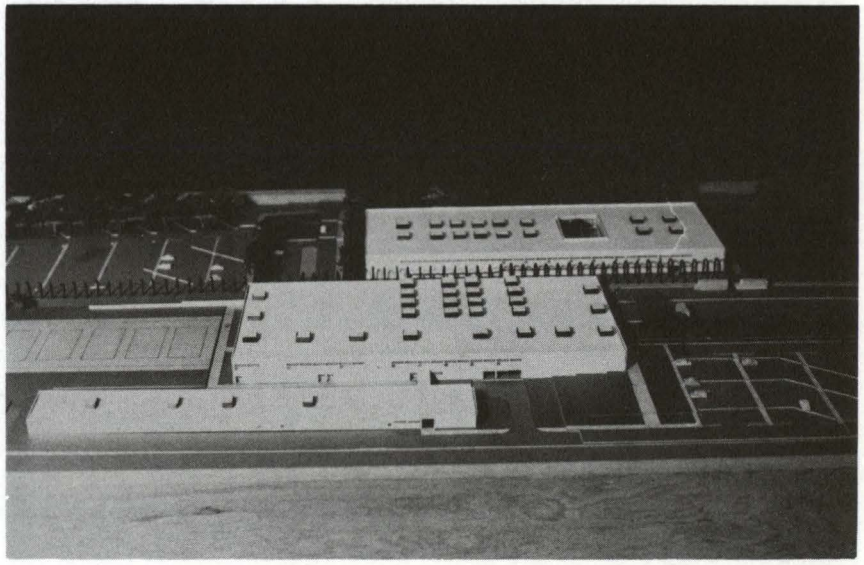


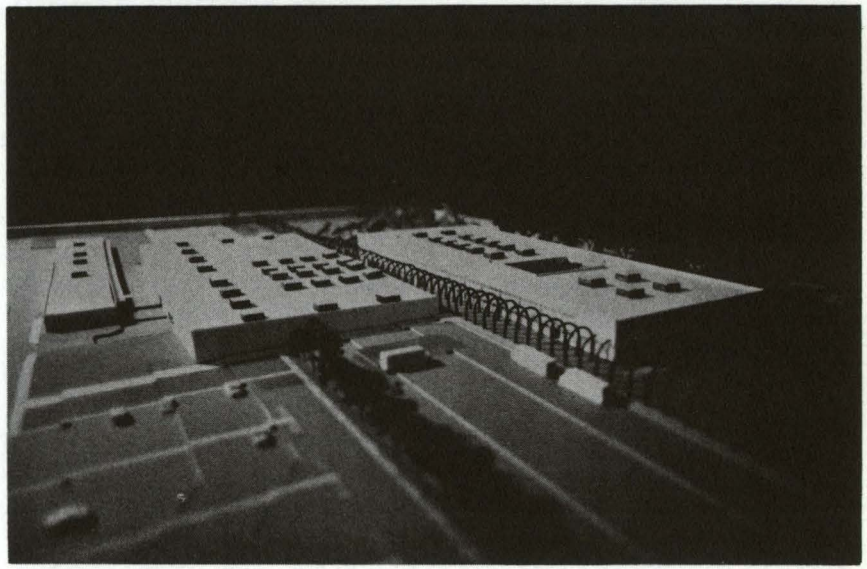
DETAIL/REFLECTED CEILING PLANS

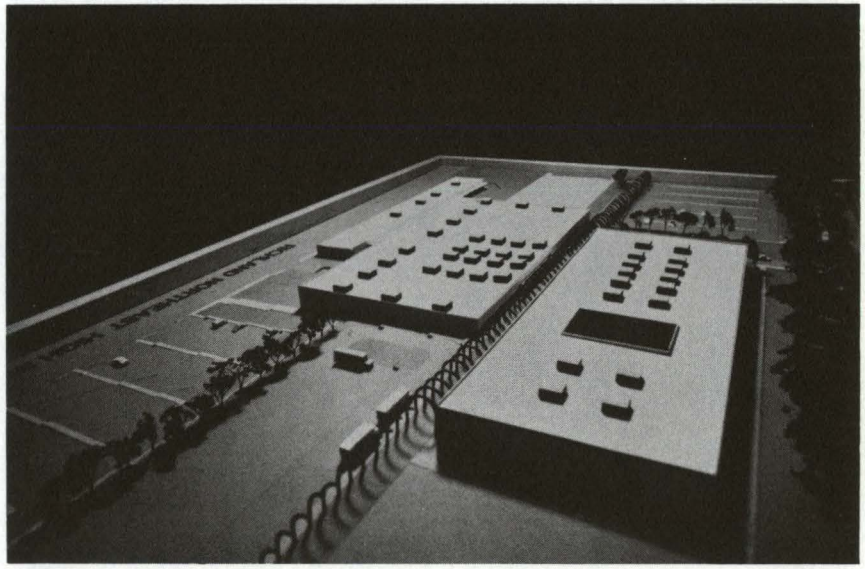


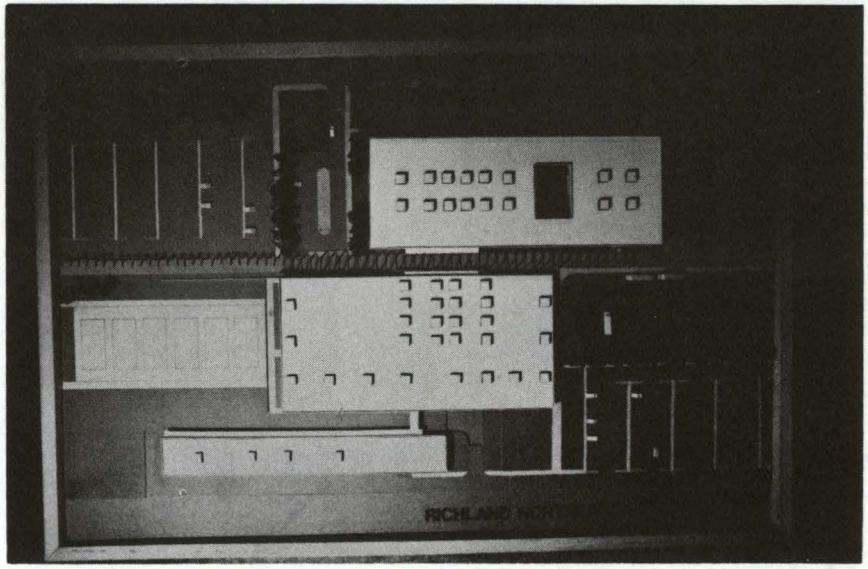
DETAIL SECTION

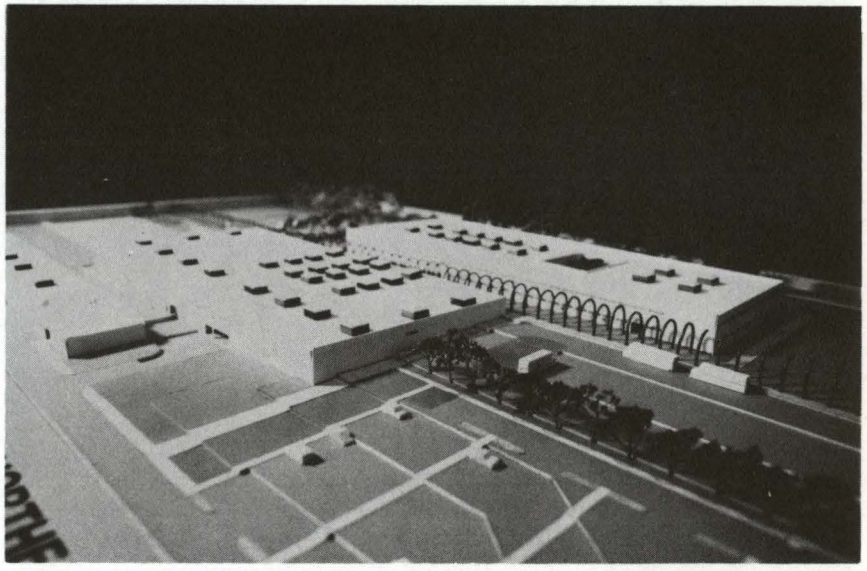












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